U.S. DEPARTMENT OF THE INTERIOR

U.S. GEOLOGICAL SURVEY

Inventory of Metal Mines and Occurrences Associated with the early Mesozoic Basins of the Eastern United States

II. Occurrence Descriptions and Summary Tables

by

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Reston, Virginia 22092

Open-File Report 92-448

1992

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Abstract

This report is a compilation of information and references on 276 metal mines, prospects, and mineral occurrences associated with the early Mesozoic basins of the Eastern United States. This compilation includes information on all known Mesozoic occurrences of copper, gold, iron, lead, silver, zinc, barite,and fluorite. Detailed and summary information on site location, deposit type, size of occurrence, deposit mineralogy and paragenesis, host rock lithology and age, and metal associations is presented.

In general, the deposit types group into three categories, with some overlap. The first category is mineral occurrences associated with igneous intrusions or the thermal aureole bordering igneous intrusions. Deposit types associated with this category include:

1) skarn and skarn/replacement deposits in marble bordering tholeiitic diabase sheets. These deposits contain abundant magnetite and accessory sulfide minerals enriched in Cu, Co, Au, and Ag.

2) hornfels deposits in metamorphosed calcareous siltstone units bordering diabase and late-stage diabase differentiates, mainly ferrogabbro and granophyre bodies. The hornfels is enriched in Cu or Cu and Fe and locally with Au, Mo, Bi, and other trace metals.

3) late-stage igneous segregations and veins within and bordering diabase sheets. The segregations and veins are enriched in Cu and locally in precious and other trace metals.

The second category is sediment-hosted, stratabound, and vein type

mineralized occurrences associated with the migration of brines within the basins, apparently unrelated to igneous intrusion. Deposits in this category include:

1) sediment-hosted and stratabound/replacement deposits of Cu and/or Zn. Sandstone-hosted deposits are copper-rich, typically enriched in Ag and sometimes U, and are associated with organic debris. Black mudstone-hosted deposits are Cu- and/or Zn-rich and occur, in general, as stratabound disseminated deposits or stratabound discordant veinlets and replacements.

2) base-metal and/or barite vein and replacement bodies, locally enriched in Pb, Zn, Cu, Ag, barite, and fluorite. These deposits are sometimes associated with faults, fractures, or shear zones.

The third category is syngenetic mineral occurrences associated with basin sedimentation, such as placer gold deposits in detritus derived by erosion of pre-Mesozoic igneous and metamorphic rocks bordering the basins.

Anomalous concentrations of gold and silver occur in many of the listed occurrences, and some of the deposits may be potential precious metal resources. In particular, the resource potential of gold in sulfide-rich portions of magnetite skarn deposits and copper-rich hornfels deposits, and the resource potential of silver in base-metal vein deposits need to be further evaluated. In addition, the resource potential of copper, zinc, and lead in black-mudstone-hosted stratabound dissemenated sulfide deposits may be substantial, based on analogy with similar deposits elsewhere. The few identified instances of black-mudstone-hosted stratabound base-metal occurrences may have significance as indicators of more extensive mineralization in the area.

Introduction

This report is a summary compilation of information and literature references on metal mines, prospects, and mineral occurrences associated with the early Mesozoic basins of the Eastern United States. A more complete description of the metal occurrences summarized here can be found in Robinson and Sears (in press). The compilation includes information on all known Mesozoic occurrences of copper, gold, iron, lead, silver, zinc, barite, and fluorite, and contains selected entries for arsenic, cobalt, mercury, and molybdenum. Barite and fluorite are included with this set of metal occurrences due to their common association with metallic minerals. Uranium occurrences with no other associated metal have been omitted from the compilation; the three uranium entries are for base-metal occurrences with accessory uranium.

This compilation is intended as an aid to regional mineral resource assessment, mineral exploration, and land-use planning. The mineral occurrence locality data and the supplementary information on geologic and geochemical characteristics have been used to classify the occurrences into several ore-deposit-type categories, which are described below. The distribution patterns and geologic features of these deposit types can be used in conjunction with regional mapping, tectonic models, and geophysical and geochemical surveys to help predict favorable areas for mineral exploration.

The mineral occurrence information is presented in summary form in Table 1 (sections A, B, C, and D) and in detailed form in Appendix 1. Information in Table 1 and Appendix 1 is given in the categories of :

1. name and location (county, state, quadrangle, latitude, and longitude)

2. deposit size (occurrence type - mine, prospect, or occurrence; production estimate)
3. deposit type (classification of the deposit according to genesis)
4. host-rock information (lithology, age)
5. metal associations (principal and accessory commodities)
6. reference information.

The detailed occurrence descriptions located in Appendix 1 also give, when information is available, historical notes, ore production and ore assay information, deposit mineralogy and paragenesis information, and detailed geologic descriptions of the setting of the occurrences. More detailed descriptions of the headings in Table 1 are given below. More detailed descriptions of the occurrence description headings are given in Appendix 1.

Headings in Table 1.

Site Number, Site Name

Each entry has been assigned a site number in Table 1. The site numbers are arranged, in general, in consecutive ascending order, from north to south and east to west.

The most prevalent name of a mine or prospect which was used in reference descriptions or other written records is used in this category. Where multiple names have been given to one mine or prospect site, generally the most recent name has been selected. References which use these names can be found in the references cited section of the summary tables. For prospects and mineral occurrences with no history of a designated name, in many cases a name has been selected from a nearby geographic feature, such as a hill, stream, or town.

County, State, Quadrangle, Latitude, Longitude

Information in the county, state, quadrangle, latitude, and longitude categories were compiled by locating the mineral occurrence sites on standard 7 $^1/_2$ minute U. S. Geological Survey topographic sheets (scale 1:24,000 or 1:25,000), where possible. The name in the quadrangle category refers to the name of the 7 $^1/_2$ minute topographic sheet where the site is located. If 7 $^1/_2$ minute topographic sheets were not available for the area in question, other U. S. Geological Survey topographic maps at the largest available scale were used. The scale of these maps, where used, follow the quadrangle name in the quadrangle category.

Occurrence type, Production

The occurrences are classified as mines (m), prospects (p), or mineral occurrences (o) in Table 1. The mine designation is given to deposits with a written or recorded history of attempted commercial development and ore production. The prospect designation is given to sites where some excavation or mineral exploration activity has occurred. The mineral occurrence designation is given for sites where anomalously high metal values or interesting or unusual metal-bearing minerals occur, but the area has never been mined or prospected for metals. The volume of metal-enriched rock may be extremely small for some of the mineral occurrence sites; however, these occurrences may have significance as indicators of more extensive mineralization in the area.

Available information on the amount of ore production was compiled for the mined deposits. The production history of the mined deposits has been categorized in Table 1a as greater than 100,000 tons of ore (L, large), between 1000 and 100,000 tons of ore (M, moderate), less than

1000 tons of ore (N, negligible), and unknown production history (U). Most of the sites with an unknown production history probably had negligible ore production.

Deposit Types

In general, the deposit types are grouped into three categories, with some overlap. The first category is mineral occurrences associated with igneous intrusions or the thermal aureoles bordering igneous intrusions. Deposit types associated with this category have been described in more detail by Robinson (in press) and include:

1) skarn and skarn/replacement deposits in marble bordering tholeiitic diabase sheets. Skarn consists of coarse-grained Ca-Fe-Mg-Mn silicates formed by replacement of carbonate-bearing rocks during contact metamorphism and metasomatism. Metal deposits that contain skarn as gangue, termed skarn deposits, form during hydrothermal alteration of anhydrous skarns (Einaudi and others, 1981). The skarn deposits considered here contain abundant magnetite and accessory sulfide minerals enriched in Cu, Co, Au, and Ag.

2) hornfels deposits in metamorphosed calcareous siltstone units bordering diabase and late-stage diabase differentiates, mainly ferrogabbro and granophyre bodies. Hornfels consists of fine-grained Ca-Fe-Mg-Al silicates formed by the replacement of impure carbonate-bearing and pelitic rocks. Metal deposits associated with hornfels, termed hornfels deposits, form by contact metamorphism and hydrothermal metasomatism of the host rocks with the formation of oxide, sulfide, and silicate minerals. The hornfels deposits are enriched in Cu or Cu and Fe and locally with Au, Mo, Bi, and other trace metals.

3) late-stage igneous segregations and veins within and bordering

diabase sheets. The segregations and veins formed by a combination of magmatic and post-magmatic processes which result in disseminated replacement of host rock and epigenetic mineral fillings of tabular or sheetlike fractures in the host rock. The segregations and veins are enriched in Cu and locally in precious and other trace metals.

The second category is sediment-hosted, stratabound, and vein type mineralized occurrences associated with the migration of brines within the basins, apparently unrelated to igneous intrusion. Deposits in this category include:

1) sediment-hosted and stratabound/replacement deposits of Cu and/or Zn. Sandstone-hosted deposits are copper-rich, typically enriched in Ag and sometimes U, and are associated with organic debris. Black mudstone-hosted deposits are copper- and/or zinc-rich and occur, in general, as stratabound disseminated deposits or stratabound discordant veinlets and replacements. More information on these deposit types may be found in Smoot and Robinson (this volume).

2) base-metal and/or barite vein and replacement bodies, locally enriched in Pb, Zn, Cu, Ag, barite, and fluorite. These deposits are sometimes associated with faults, fractures, or shear zones and occur as epigenetic mineral fillings of fractures in the host rock. More information on these deposits may be found in Robinson and Woodruff (This volume).

The third category is syngenetic mineral occurrences associated with basin sedimentation, such as placer gold deposits in detritus derived by erosion of pre-Mesozoic igneous and metamorphic rocks bordering the basins. The placer deposits are fluvial sedimentary deposits formed by the mechanical concentration of resistant mineral grains from weathered debris.

Metal Associations

This compilation includes information on all known Mesozoic occurrences of copper, gold, iron, lead, silver, zinc, barite, and fluorite, and contains selected entries for arsenic, cobalt, mercury, molybdenum, and uranium. Uranium occurrences with no other associated metal have been omitted from the compilation; the three uranium entries are for base-metal occurrences with associated uranium enrichment.

Selected metals and non-metals (Ba, F) which are present in anomalous quantities at each occurrence are listed in the metal associations category of Table 1 using the common chemical symbols for these elements. The elements listed in the principal subcategory are those base- and selected non-metals which are most abundant at each occurrence. In most cases, the elements noted as principal are major components of some individual minerals in the occurrence, such as Fe in magnetite and Cu in chalcopyrite. The elements listed in the accessory subcategory are those base- and selected non-metals which occur in minor but anomalous amounts at each occurrence. Elements in this subcategory may occur both as major components in trace minerals or as minor components in other minerals (such as Ag in galena) at the occurrence.

Reference Information

All references used in the compilation of this information are given in Table 1 and the reference section of the occurrence descriptions in Appendix 1. The references for each occurrence are identified by the series of numbers at the end of each citation in Table 1, Sections A, B, C, and D. These reference numbers are keyed to individual reference citations in Table 1E which are listed in the occurrence bibliography section of this report.

Discussion

Numerous occurrences of anomalous concentrations of copper, lead, zinc, and iron in the early Mesozoic basins of the eastern United States have been noted and prospected in the past, particularly during the eighteenth and nineteenth centuries. Most of these occurrences provided only limited mine production of base metals, although some were temporarily important resources during the early history of the United States. Only fifteen mines of the 122 mines and prospects summarized in Table 1 had production exceeding 100,000 tons of ore during their operating history. Of these 15 large production mines, all but two are skarn deposits, where the primary ore mineral was magnetite. Four skarn deposits produced or have existing ore reserves near or in excess of one million tons of ore (no. 160, French Creek mines; no. 171, Grace mine; no. 179, Cornwall mine; and nos. 202-219, Dillsburg district mines).

Approximately 42 percent of the 276 occurrences listed in Table 1 are metal deposits associated with igneous intrusions or the thermal aureoles bordering igneous intrusions. Approximately 25 percent of the 276 occurrences are skarn deposits, 15 percent are hornfels deposits, and 3 percent are diabase-hosted vein deposits. These percentages generally reflect the relative economic value of each of these deposit types. Approximately 54 percent of the 276 occurrences listed in Table 1 are sediment-hosted stratabound or vein deposits associated with the migration of connate brines within the basins and adjacent basement rocks, and are apparently not associated with igneous intrusions. Of the 276 occurrences, approximately 38 percent are vein deposits and 16 percent are sediment-hosted stratabound deposits. Only 3 percent of the 276 occurrences are placer deposits, with gold as the principal metal resource.

Anomalous concentrations of gold and silver are present in many of the occurrences summarized in Table 1 (see Table 1, section D), and some of the deposits listed may have potential as precious metal resources. In particular, the resource potential of gold in sulfide-rich portions of magnetite skarn deposits and copper-rich hornfels deposits, and the resource potential of silver in base-metal vein deposits need to be further evaluated. In addition, the resource potential of copper, zinc and lead in black-mudstone-hosted stratabound disseminated sulfide deposits may be substantial, based on analogy with similar deposits elsewhere. These base-metal deposits hosted by black mudstones resemble unmineralized black mudstones in outcrop and hand sample; therefore, extensive deposits of this type of mineralization may go unrecognized. The few instances of black-mudstone-hosted stratabound base-metal occurrences listed in Table 1 may have significance as indicators of more extensive mineralization in the area.

References Cited

Einaudi, M. T., Meinart, L. D., and Newberry, R. J., 1981, Skarn Deposits: Economic Geology, Seventy-Fifth Anniversary Volume, p. 317-391.

Robinson, G. R., Jr. , this volume, Base- and Precious-Metals Associated with Diabase in the Newark, Gettysburg, and Culpeper basins of New Jersey, Pennsylvania, and Virginia, in, Froelich A. J. and Robinson, G. R., Jr., eds., Studies of the early Mesozoic basins of the Eastern United States: U. S. Geological Survey Bulletin 1776, 45 p.

Robinson, G. R., Jr. and Sears, C. M., in press, Inventory of Metal Mines and Occurrences Associated with the early Mesozoic basins of the Eastern United States. II. Occurrence Descriptions and Summary Tables: U. S. Geological Survey Open-File Report.

Robinson, G. R., Jr. and Woodruff, Laurel, this volume, Characteristics of Base-metal Barite Veins Associated with Rift Basins, in, Froelich A. J. and Robinson, G. R., Jr., eds., Studies of the early Mesozoic basins of the Eastern United States: U. S. Geological Survey Bulletin 1776, 45 p.

Smoot, J. P. and Robinson, G. R., Jr, this volume, Sedimentology of Strata-bound Base-Metal Occurrences in the Newark Supergroup, in, Froelich A. J. and Robinson, G. R., Jr., eds., Studies of the early Mesozoic basins of the Eastern United States: U. S. Geological Survey Bulletin 1776, 45 p.

Occurrence Bibliography
(references cited in Table 1 and the occurrence descriptions in Appendix 1)

Bain, G. W., 1936, Mechanics of Metasomatism: Economic Geology, v. 31, p. 505-526.

Balk, Robert, 1956, Bedrock geology of the Massachusetts portion of the Bernardston Quadrangle, Massachusetts-Vermont: U.S. Geological Survey, Geologic Quadrangle Map GQ-90.

Bannerman, H. M., 1941, The fluorite deposits of Cheshire County, N.H.: New Hampshire State Planning and Development Commission, New Hampshire Mineral Resource Survey, Part V., 11 p.

Bascom, Florence and Stose, G. W., 1938, Geology and mineral resources of the Honeybrook and Phoenixville Quadrangles, Pennsylvania: U.S. Geological Survey Bulletin 891, 145 p.

Bascom, Florence, Wherry, E. T., Stose, G. W., and Jonas, A. I., 1931, Geology and mineral resources of the Quakertown-Doylestown District, Pennsylvania and New Jersey: U.S. Geological Survey Bulletin 828, 62 p.

Basu, D., 1974, Genesis of the Grace Mine magnetite deposit, Morgantown, Berks County, southeastern Pennsylvania: Ph.D. Thesis, Lehigh University, 317 p.

Bateman, A. M., 1923, Primary chalcocite: Bristol Copper Mine, Connecticut: Economic Geology, v. 18, no. 2, p. 122-166.

Bates, R. O., 1959, An application of statistical analysis to exploration for uranium on the Colorado Plateau: Economic Geology, v. 54, p. 449-466.

Beck, H. H., 1952, The Minerals of Lancaster County, 3rd ed.: Linnean Society of Lancaster County, Lancaster, Pennsylvania, 13 p.

Becker, G. F., 1895, Reconnaissance of gold fields of the Southern Appalachians: U.S. Geological Survey, 16th Annual Report, Part 3, p. 251-331.

Bernstein, L. R., 1980, Minerals of the Washington, D.C. area: Maryland Geological Survey, Education Series no. 5, 148 p.

Blake, W. P., 1860, The Wheatley silver lead mines: Mining Magazine and Journal of Geology, 2nd series, v. 1, p. 411-418.

Burt, E. R., Carpenter, P. A., III, McDaniel, R. D., and Wilson, W. F., 1978, Diabase dikes of the Eastern Piedmont of North Carolina: North Carolina Geologial Survey Information Circular 23, 12 p.

Carpenter, P. A., III, 1976, Metallic mineral deposits of the Carolina Slate Belt, North Carolina: North Carolina Department of Natural and Economic Resources, Bulletin 84, 166 p.

Cook, G. H., 1868, Geology of New Jersey: New Jersey Geological Survey, 900 p.

Cornwall, H. R., 1945, The Arlington Copper Mine, North Arlington, New Jersey: U.S. Geological Survey Strategic Minerals Investigations Report (unnumbered, 1943), 6 p.

D'Agostino, J. P. and Hanshaw, P. M., 1970, Malachite- and specularite-bearing Triassic sandstone localities near Chantilly, Virginia: U.S. Geological Survey Professional Paper 700C, p. C103-C106.

Darton, N. H., 1885, On the occurrence of native silver in New Jersey: American Journal of Science, 3rd series, v. 30, p. 80-81.

Dietrich, R. U., 1955, Additions to Virginia mineral localities: Virginia Polytechnical Institute Bulletin, Engineering Experiment Station, Series 105, 30 p.

d'Invilliers, E. V., 1883, The geology of the South Mountain belt of Berks County: Pennsylvania Geological Survey (2nd), Report DDD, 441 p.

Dombroski, D. R., Jr., 1980, A geological and geophysical investigation of concealed contacts near an abandoned barite mine, Hopewell, New Jersey: unpublished M.S. Thesis, Rutgers University, N.J., 33 p.

Earl, K. M., 1950, Investigation of Perkiomen Creek copper deposits, Montgomery County, Pennsylvania: U.S. Bureau of Mines, Report of Investigations 4666, 13 p.

Edmundson, R. S., 1938, Barite deposits of Virginia: Virginia Division of Mineral Resources, Bulletin 53, 85 p.

Eggleton, R. E., 1975, Preliminary geologic map of the Herndon Quadrangle: U.S. Geological Survey Open-File Report 75-386.

Emerson, B. K., 1898a, Holyoke Folio: U.S. Geological Survey, Geologic Atlas No. 50, 13 p.

Emerson, B. K., 1898b, Geology of old Hampshire County, Massachusetts, comprising Franklin, Hampshire, and Hampden Counties: U.S. Geolgical Survey, Monograph v. 29, 790 p.

Espenshade, G. H., 1954, Geology and mineral deposits of the James River-Roanoke River manganese district, Virginia: U.S. Geological Survey Bulletin 1008, 115 p.

Eugster, H. P., and Chou, I-Ming, 1979, A model for the deposition of Cornwall-type magnetite deposits: Economic Geology, v. 74, p. 763-774.

Eyerman, J., 1889, Mineralogy of Pennsylvania, Part I: (n.p.), Easton, Pennsylvania.

Faill, R. T., 1973, Tectonic development of the Triassic Newark-Gettysburg Basin in Pennsylvania: Geological Society of America Bulletin, v. 84, p. 725-740.

Frazer, P., 1877, Regarding some Mesozoic ores: American Philosophical Society, Proceedings, v. 16, p. 651-655.

Frazer, P., Jr., 1880, The geology of Lancaster County: Pennsylvania Geological Survey (2nd), Report of Progress in 1877, Report CCC, 350 p.

Frazer, P., 1886, Sketch on the geology of York County, Pennsylvania: American Philosophical Society Proceedings, v. 23, p. 391-410 (map).

Fritts, C. E., 1962, The barite mines of Cheshire: The Cheshire Historical Society, Cheshire, Connecticut.

Fritts, C. E., 1963a, Bedrock geology of the Mount Carmel Quadrangle: U.S. Geological Survey, Geologic Quadrangle Map GQ-199.

Fritts, C. E., 1963b, Geologic Map of the Southington Quadrangle: U.S. Geological Survey, Geologic Quadrangle Map GQ-200.

Froelich, A. J., 1975, Map showing mineral resources of Montgomery County, Maryland: U.S. Geological Survey Miscellaneous Investigations, Map I-920-E.

Froelich, A. J. and Leavy, B. D., 1981, Map showing mineral resources of the Culpeper basin, Northern Virginia and Maryland: U.S. Geological Survey Miscellaneous Investigations, Map I-1313-B.

Gedde, R. W., 1965, Geophysical investigation of a magnetite deposit, Chester County, Pennsylvania: unpublished M.S. Thesis, Pennsylvania State University, 59 p.

Genth, F. A. L. K. W., 1851, Geological Report in First Report of the Board of Directors and the Superintendent of the Chester County Mining Company: King and Baird, Philadelphia, p. 19-28.

Geyer, A. R., Gray, Carlyle, McLaughlin, D. B., and Moseley, J. R., 1958, Geology of the Lebanon Quadrangle: Pennsylvania Geological Survey, 4th series, Geologic Atlas 167C.

Geyer, A. R., Smith, R. C., II, and Barnes, J. H., 1976, Mineral Collecting in Pennsylvania: Pennsylvania Geological Survey, General Geology Report 33, 260 p.

Ghaffer-Adly, R., 1961, A detailed gravity survey in the Triassic basin, north Chester County, Pennsylvania: M.S. Thesis, The Pennsylvania State University.

Giannini, W. F., 1959, A study of the lead-zinc deposit near Faber, Virginia: unpublished M.S. Thesis, University of Virginia.

Gleba, Peter, 1978, Massachusetts mineral and fossil localities: Krueger Enterprises, Inc., Cambridge, Mass.

Gordon, S. G., 1922, The Mineralogy of Pennsylvania: Special Publication No.1, Academy of Natural Science, Philadelphia (reprinted 1973 by Friends of Mineralogy, Region III).

Gray, Carlyle, and Lapham, D. M., 1961, Guide to the geology of Cornwall, Pennsylvania: Pennsylvania Geological Survey, Bulletin G35, 18 p.

Gray, N. H., 1982, Copper Occurrences in the Hartford Basin of northern Connecticut: in Joesten, R. and Quarrier, S.S., eds., Guidebook for Fieldtrips in Connecticut and South Central Massachusetts, New England Intercollegiate Geological Conference, 74th Annual Meeting, p. 195-211.

Hanshaw, P. M., 1968, Bedrock geology of the Meriden Quadrangle: U.S. Geological Survey, Geologic Quadrangle Map GQ-738.

Harder, E. C., 1910, Structure and origin of the magnetite deposits near Dillsburg, York County, Pennsylvania: Economic Geology, v. 5, p. 599-622.

Harvey, James, 1865, First annual report of the New York and Boston Silver Lead Mining Company: A.A. Moser, Stationer (New York).

Hawkes, H. E., Wedow, Helmuth, and Balsley, J. R., 1953, Geologic investigation of the Boyertown magnetite deposits in Pennsylvania: U.S. Geological Survey Bulletin 995-D, p. 135-149.

Hayes, W. H., 1949, The Bridgewater Copper Mine from the collector's standpoint: Rocks and Minerals, v. 24, p. 27-29.

Hiller, John, 1975, Massachusetts mines and minerals: the author, Stratford, Connecticut., 51 p.

Hiller, John, 1974, Connecticut mines and minerals: the author, Waterbury, Connecticut., 61 p.

Hitchcock, Edward, 1823, A sketch of the geology, mineralogy, and scenery of the regions contiguous to the River Connecticut; with a geological map and drawings of organic remains; and occasional botanical notices, Part II, Simple minerals: American Journal of Science, v. 6, p. 201-236.

Hitchcock, Edward, 1832, Geology of Massachusetts: American Journal of Science and Arts, v. 22, no. 1, p. 1-70.

Hitchcock, Edward, 1835, Economical geology: in Hitchcock, E., Report on the Geology, Mineralogy, Botany and Zoology of Massachusetts, p. 68-74.

Hoff, D. T., and Smith, R. C., II, 1985, An Adams County copper-gold mine, doomed to failure: Pennsylvania Geology, v. 16, no. 6, p. 13-16.

Hoofstetten, Charles, 1855, in Wheatley, C.M., ed., Statement of the Pennsylvania Land Company, T.K. and P.G. Collins, publishers (Philadelphia).

Hotchkiss, J., 1884, The copper ores of Loudoun County, Virginia: The Virginias, v.5, n. 12, p. 192.

Hotz, P. E., 1950, Diamond-drill exploration of the Dillsburg magnetite deposits, York County, Pennsylvania: U.S. Geological Survey Bulletin 969-A, 27 p.

Hovey, E. O., 1889, Observations on some of the trap ridges of the East Haven-Branford Region: American Journal of Science, 3rd series, v. 38, p. 361-383.

Hunt, T. S., 1876, A new ore of copper and its metallurgy: American Institute of Mining Engineers, Transactions, v. 4, p.325-328.

Jahns, R. H., 1951, Surficial geology of the Mount Toby Quadrangle, Massachusetts: U.S. Geological Survey Map 53-1254.

Januzzi, R. E., 1959, The minerals of western Connecticut and southeastern New York State: The Mineralogical Press (Danbury, CT).

Kummel, H. B., 1901, Mining industry of New Jersey: New Jersey Geological Survey, Annual Report of the State Geologist for 1900, p. 197-213.

Lapham, D. M. and Geyer, A. R., 1965, Mineral collecting in Pennsylvania, 2nd ed.: 4th Pennsylvania Geological Survey Bulletin G-33, 148 p.

Lapham, D. M., 1968, Triassic magnetite and diabase at Cornwall, Pennsylvania: in, Ridge, J.D., ed., Ore Deposits of the United States 1933-1967, v.1, American Institute of Mining and Metallurgical Engineers, p.73-94.

Lapham, D. M.and Gray, Carlyle, 1973, Geology and origin of the Triassic magnetite deposit and diabase at Cornwall, Pennsylvania: Pennsylvania Topographic and Geologic Survey, 4th series, Bulletin M56.

Lee, K. Y., 1979, Triassic-Jurassic geology of the northern part of the Culpeper basin, Virginia and Maryland: U.S. Geological Survey Bulletin 1422-C, 17 p.

Lee, O. I., 1937, Ye ancient copper mine of Arent Schuyler: Rocks and Minerals, v. 12, p. 99-109.

Lehmann, E. P., 1959, Bedrock geology of the Middletown Quadrangle: Connecticut Geological Survey Quadrangle Report no. 8, 34 p.

Lewis, J. V., 1907a, Copper deposits of the New Jersey Triassic: Economic Geology, v. 2., p. 242-257.

Lewis, J. V., 1907b, The Newark (Triassic) copper ores of New Jersey: New Jersey Geological Survey, Annual Report of the State Geologist, 1906, p. 131-164.

Lonsdale, J. T., 1927, Geology of the gold-pyrite belt of the northeastern Piedmont, Virginia: Virginia Geological Survey Bulletin 30, 110 p.

Luttrell, G. W., 1966, Base- and precious-metal and related ore deposits of Virginia: Virginia Division of Mineral Resources, Mineral Resource Report 7, 167 p.

Miller, B. L., 1924, Lead and zinc ores of Pennsylvania: Pennsylvania Geological Survey, 4th series, Bulletin M5, 91 p.

Miller, B. L., 1923, Lead and zinc ores near Phoenixville, Chester County, Pennsylvania: Pennsylvania Geological Survey, 4th series, Progress Report 67.

Morrill, Philip, 1960, New Hampshire mines and mineral localities, 2nd edition: Dartmouth College Museum, Hanover, New Hampshire, 46 p.

Nash, Allanson, 1827, Notices of lead mines and veins of Hampshire County, Massachusetts and the geology and mineralogy of that region: American Journal of Science and Arts, v. XII, Art. IX, p. 258.

Nelson, W. A., 1962, Geology and Mineral Resources of Albemarle County: Virginia Division of Mineral Resources, Bulletin 77, 92 p.

Neumann, G. L., 1947, Investigation of the Dillsburg magnetite deposits, York County, Pennsylvania: U.S. Bureau of Mines Report of Investigations 4145, 7 p.

Newhouse, W. H., 1933, Mineral zoning in the New Jersey-Pennsylvania-Virginia Triassic area: Economic Geology, v. 28, p. 613-633.

Pearre, N. C., 1956, Mineral deposits and occurrences in Massachusetts and Rhode Island, exclusive of clay, sand, gravel, and peat: U.S. Geological Survey, Mineral Investigations Resource Map MR-4.

Peper, J. D., 1977, Bedrock Geologic Map of the Hampden Quadrangle, Massachusetts and Connecticut: U.S. Geological Survey Geologic Quadrangle Map GQ-1368.

Percival, J. G., 1842, Report on the Geology of the state of Connecticut: Osborn and Baldwin, printers, New Haven, 495 p. (p. 383)

Perrin, J. D., 1976, Geology of the Newgate Prison Mine, East Granby, Connecticut: unpublished M.S. Thesis, University of Connecticut.

Potisat, Somsak, 1978, Copper and uranium deposits in red beds of the Connecticut Valley: unpublished M.S. Thesis, Wesleyan University, 123 p.

Puffer, J. H., and Peters, J. J., 1974, Magnetite veins in diabase of Laurel Hill, New Jersey: Economic Geology, v.69, p. 1294-1299.

Reed, D. F., 1949, Investigation of Pickering Creek lead-zinc deposits, Chester County, Pennsylvania: U.S. Bureau of Mines, Report of Investigations 4451, 11 p.

Rice, W. N. and Foye, W. G., 1927, Geology of Middletown, Connecticut and vicinity: Connecticut Geological and Natural History Survey, Bulletin 41, 137 p.

Roberts, J. K., 1928, The geology of the Virginia Triassic: Virginia Geological Survey, Bulletin 29, 205 p.

Rogers, H. D., 1853, Report on the Wheatley and Brookdale Mines, Chester County, Pennsylvania: Mining Magazine, v. 1, p. 375-387.

Rogers, H. D., 1858, The geology of Pennsylvania: J.B. Lippincott and Company, Philadelphia, 815 p.

Rogers, W. B., 1884, A reprint of annual reports and other papers on the geology of the Virginias: D. Appleton and Company, New York, 832 p.

Rose, A. W., 1970, Atlas of Pennsylvania's mineral resources, Part 3: Metal mines and occurrences in Pennsylvania: Pennsylvania Geological Survey, Bulletin M50, 14 p.

Ross, H. P., 1963, Detailed electrical surveys in the Triassic basin, north Chester County, Pennsylvania: unpublished M.S. Thesis, The Pennsylvania State University.

Schairer, J. F., 1931, The Minerals of Connecticut: Connecticut Geological and Natural History Survey, Bulletin 51.

Schnabel, R. W., 1964, Geologic map of the Windsor Locks Quadrangle: U.S. Geological Survey, Geologic Quadrangle Map GQ-388.

Shank, J. C., 1961, A detailed magnetic survey in the Triassic basin, North Chester County, Pennsylvania: unpublished M.S. Thesis, The Pennsylvania State University.

Shepard, C. U., 1837, A report on the geological survey of Connecticut: Connecticut Geological Survey Report, New Haven, Connecticut, 188 p. (p. 42)

Silliman, Benjamin, Jr., and Whitney, J. D., 1855, Notice of the geological position and character of the copper mines at Bristol, Connecticut: American Journal of Science, v. 20, p. 361-368.

Simpson, H. E., 1966, Bedrock geology of the New Britain Quadrangle: U.S. Geological Survey, Geologic Quadrangle Map GQ-494.

Sims, S. J., 1968, The Grace Mine magnetite deposit, Berks County, Pennsylvania: in, Ridge, J.D., ed., Ore Deposits of the United States 1933-1967, v. 1, American Institute of Mining and Metallurgical Engineers, p. 108-124.

Smith, J. L., 1855, Re-examination of American minerals, Part V- The minerals of the Wheatley mine in Pennsylvania: American Journal of Science and Arts, v. 2, 2nd series, p. 242-253.

Smith, L. L., 1931, Magnetite deposits of French Creek, Pennsylvania: Pennsylvania Geological Survey, 4th series, Bulletin M-14, 52 p.

Smith, R. C., II, 1973, Geochemistry of triassic diabase from southeastern Pennsylvania: Ph.D. Thesis, The Pennsylvania State University, 262 p.

Smith, R. C., II, 1977, Zinc and lead occurrences in Pennsylvania: Pennsylvania Geological Survey, Mineral Resource Report 72, 318 p.

Smith, R. C., II, 1978, The mineralogy of Pennsylvania, 1966-1975: Friends of Mineralogy, Pennsylvania Chapter, Special Publication No. 1, 304 p.

Smith, R. C., II, Berkheiser, S. W., Jr., and Hoff, D. T., in press, Locations and analyses of selected early Mesozoic copper occurrences in Pennsylvania, in, Froelich, A. J., and Robinson, G. R., Jr., eds., Studies of the early Mesozoic basins of the Eastern United States: U. S. Geological Survey Bulletin 1776, 26 p.

Smith, R. C., II, and Hoff, D. T., 1977, Newly discovered minerals at Stone Jug copper prospect, Adams County: Pennsylvania Geology, v.8, n.5, p. 14-16.

Smith, R. C., II, and O'Neill, B. J., 1973, A new Triassic copper occurrence at Rossville, Pennsylvania: Pennsylvania Geology, v. 4, no. 1, p. 6-7.

Speer, J. A., Craig, J. R., and Hill, R. J., 1978, The "Cobaltite" crystals from the Kibblehouse quarry: Rocks and Minerals, v. 53, no. 3, p. 130-134.

Spencer, A. C., 1908, Magnetite deposits of the Cornwall-type in Pennsylvania: U.S. Geological Survey Bulletin 359, 102 p.

Stone, R. W., 1939, The minerals of Pennsylvania - non-metallic minerals: Pennsylvania Geological Survey, 4th series, Bulletin M18-C, 49 p.

Stose, G. W., 1932, Geology and mineral resources of Adams County, Pennsylvania: Pennsylvania Geological Survey, 4th series, Bulletin C1, 153 p.

Stose, G. W., and Bascom, Florence, 1929, Fairfield-Gettysburg Folio: U.S. Geological Survey Folio 225.

Stose, G. W., and Bascom, Florence, 1938, Geology and mineral resources of the Honeybrook-Phoenixville quadrangles, Pennsylvania: U.S. Geological Survey Bulletin 891.

Stose, G. W., and Jonas, A. I., 1939, Geology and mineral resources of York County, Pennsylvania: Pennsylvania Geological Survey, 4th series, Bulletin C67, 199 p.

Stugard, F., Jr., 1958, Pegmatites of Middletown Connecticut: U.S. Geological Survey Bulletin 1042-Q.

Sunderman, H. C., 1958, Geology and mineral resources of the Scottsville Triassic basin, Virginia: Virginia Division of Mineral Resources, Open-File Report, 58 p.

Toewe, E. C., 1966, Geology of the Leesburg Quadrangle, Virginia: Virginia Division of Mineral Resources, Report of Investigations 11, 52 p.

Turnbull, L., 1854, A visit to the lead and copper mines of Chester County, Pennsylvania: Journal of the Franklin Institute, 3rd series, v. 27, p. 52-54.

U.S. Geological Survey, 1968, U.S. Geological Survey Heavy Metals Program Progress Report 1968 - Topical Studies: U.S. Geological Survey Circular 622, 7 p.

Watson, T. L., 1907, Mineral Resources of Virginia: Virginia Jamestown Exposition Commission, Lynchburg, Virginia.

Webster, Bud, 1978, Mineral Collector's Field Guide, Connecticut: E.R. Webster, Jr., publisher.

Weed, W. H., 1903, Copper deposits of New Jersey: New Jersey Geological Survey, Annual Report of the State Geologist, 1902, p. 125-140.

Weed, W. H., 1911, Copper deposits of the Appalachian states: U.S. Geological Survey Bulletin 455, 166 p.

Wherry, E. T., 1908, The Newark copper deposits of southeastern Pennsylvania: Economic Geology, v. 3, p. 726-738.

Willard, B., and others, 1959, Geology and mineral resources of Bucks County, Pennsylvania: Pennsylvania Geological Survey, Bulletin C9, 243 p.

Willard, M. E., 1952, Bedrock geology of the Greenfield Quadrangle, Massachusetts: U.S. Geological Survey, Geologic Quadrangle Map GQ-20.

Willard, M. E., 1956, Bedrock geology of the Williamsburg Quadrangle, Massachusetts: U.S. Geological Survey, Geologic Quadrangle Map GQ-85.

Williams, C. P., 1863, A stock prospectus of the Perkiomen Mining Company, Philadelphia (no publisher).

Woodward, H. P., 1944, Copper mines and mining in New Jersey: New Jersey Department of Conservation and Development, Geologic Series, Bulletin 57, 156 p.

Table 1. Inventory of metal mines and occurrences associated with the early Mesozoic basins of the Eastern U. S.
Section A. Occurrences listed by geographic location.

occurrence no. [a/]	name	county	state	quadrangle	latitude	longitude	occurrence type	production [b/]
0-001	E. Surry Mtn. mine	Cheshire	N. H.	Bellows Falls 15'	N43°02'01"	W72°18'26"	mine	u
0-002	Will Wise mine	Cheshire	N. H.	Keene 7.5 x 15	N42°56'55"	W72°29'10"	mine	n
0-003	Stoddard mine 1	Cheshire	N. H.	Keene 7.5 x 15	N42°56'01"	W72°27'56"	mine	m
0-004	Stoddard mine 2	Cheshire	N. H.	Keene 7.5 x 15	N42°56'00"	W72°28'03"	mine	m
0-005	Springer mine	Cheshire	N. H.	Keene 7.5 x 15	N42°55'50"	W72°28'32"	mine	m
0-006	fluorite prospect	Cheshire	N. H.	Keene 7.5 x 15	N42°55'45"	W72°28'18"	prospect	n
0-007	Pierce mine	Cheshire	N. H.	Keene 7.5 x 15	N42°55'44"	W72°27'55"	mine	m
0-008	Streeter Hill	Cheshire	N. H.	Keene 7.5 x 15	N42°55'21"	W72°29'51"	occurrence	n
0-009	galena occurrence	Cheshire	N. H.	Winchester	N42°49'17"	W72°23'24"	occurrence	n
0-010	Winchester mine	Cheshire	N. H.	Northfield	N42°43'42"	W72°26'30"	mine	n
1-011	Bernardston	Franklin	Mass.	Bernardston	N42°41'04"	W72°33'12"	occurrence	n
1-012	Turners Falls 1	Franklin	Mass.	Greenfield	N42°36'54"	W72°34'09"	occurrence	n
1-013	Turners Falls 2	Franklin	Mass.	Greenfield	N42°36'49"	W72°34'01"	occurrence	n
1-014	Deerfield	Franklin	Mass.	Williamsburg	N42°29'03"	W72°39'21"	occurrence	u
1-015	Unnamed Pb-Ba	Franklin	Mass.	Williamsburg	N42°28'10"	W72°39'19"	occurrence	u
1-016	Mt. Esther	Franklin	Mass.	Williamsburg	N42°27'28"	W72°40'06"	occurrence	u
1-017	Leverett	Franklin	Mass.	Mt. Toby	N42°27'28"	W72°31'06"	mine	m
1-018	Unnamed Pb-Ba 4	Franklin	Mass.	Mt. Toby	N42°27'26	W72°31'30"	occurrence	n
1-019	Whately-Wm. 1	Franklin	Mass.	Williamsburg	N42°27'17"	W72°41'01"	mine	u
1-020	Whately-Wm. 2	Franklin	Mass.	Williamsburg	N42°26'58"	W72°40'55"	mine	u
1-021	Unnamed Pb-Ba 1	Franklin	Mass.	Mt. Toby	N42°26'29"	W72°31'30"	occurrence	n
1-022	Unnamed Pb-Ba 3	Franklin	Mass.	Mt. Toby	N42°26'15"	W72°31'32"	occurrence	n
1-023	Unnamed Pb-Ba 2	Franklin	Mass.	Mt. Toby	N42°26'14"	W72°31'28"	occurrence	n
1-024	Whately-Wm. 3	Franklin	Mass.	Williamsburg	N42°25'46"	W72°40'15"	mine	u
1-025	Hatfield Lead	Hampshire	Mass.	Williamsburg	N42°23'18"	W72°38'07"	mine	m
1-026	Unnamed Pb-Ba 2	Hampshire	Mass.	Easthampton	N42°21'35"	W72°44'48"	mine	m
1-027	Unnamed Pb-Ba 1	Hampshire	Mass.	Easthampton	N42°17'34"	W72°43'50"	mine	m
1-028	Manhan Lead 1	Hampshire	Mass.	Easthampton	N42°17'02"	W72°43'55"	mine	m
1-029	Manhan Lead 2	Hampshire	Mass.	Easthampton	N42°16'54"	W72°43'58"	mine	m
1-030	Manhan Lead 3	Hampshire	Mass.	Easthampton	N42°16'49"	W72°43'58"	mine	m
1-031	Manhan Lead 4	Hampshire	Mass.	Easthampton	N42°16'36"	W72°44'02"	mine	m
1-032	Manhan Lead 5	Hampshire	Mass.	Easthampton	N42°16'30"	W72°44'00"	mine	m
1-033	Southampton	Hampshire	Mass.	Easthampton	N42°15'51"	W72°44'18"	mine	n
1-034	New Mine vein	Hampshire	Mass.	Woronoco	N42°12'45"	W72°46'50"	mine	u
1-035	Woodland Dell	Hampden	Mass.	Hampden	N42°07'13"	W72°25'31"	occurrence	n
2-036	Somers sandpit	Tolland	Conn.	Hampden	N42°01'43"	W72°26'18"	occurrence	n
2-037	K & F Suffield	Hartford	Conn.	Broad Brook	N41°58'33"	W72°36'32"	occurrence	u
2-038	Simsbury mine	Hartford	Conn.	Windsor Locks	N41°58'13"	W72°44'39"	mine	n
2-039	Newgate Prison	Hartford	Conn.	Windsor Locks	N41°57'41"	W72°44'44"	mine	m
2-040	Higley Copper	Hartford	Conn.	Windsor Locks	N41°56'16"	W72°44'25"	mine	m
2-041	Trinity College	Hartford	Conn.	Hartford North	N41°45'04"	W72°44'05"	occurrence	n
2-042	Bristol Copper	Hartford	Conn.	Bristol	N41°43'16"	W72°55'26"	mine	m
2-043	Farmington	Hartford	Conn.	New Britain	N41°42'26"	W72°49'48"	occurrence	n
2-044	basalt quarry	Hartford	Conn.	New Britain	N41°40'27"	W72°49'25"	occurrence	n
2-045	Plainfield quarry	Hartford	Conn.	New Britain	N41°40'17"	W72°49'43"	occurrence	n
2-046	Cook's Gap	Hartford	Conn.	New Britain	N41°40'02"	W72°49'46"	occurrence	n
2-047	Columbus Blvd.	Hartford	Conn.	New Britain	N41°39'51"	W72°48'05"	occurrence	n
2-048	Ellis Street	Hartford	Conn.	New Britain	N41°39'28"	W72°46'23"	occurrence	n
2-049	bitumen vein	Hartford	Conn.	New Britain	N41°37'33"	W72°47'05"	occurrence	n

occurrence no.	deposit type [a/]	host rock lithology	host rock age	metal associations principal	accessory	References [c/]
0-001	vein	gneiss	Paleozoic	Pb	Cu	80
0-002	vein	gneiss	Paleozoic	F	Ba Pb	3
0-003	vein	gneiss	Paleozoic	F	Ba Pb	3
0-004	vein	gneiss	Paleozoic	F	Ba Pb	3
0-005	vein	gneiss	Paleozoic	F	Ba Pb Cu	3
0-006	vein	gneiss	Paleozoic	F		3
0-007	vein	gneiss	Paleozoic	F	Ba Pb	3
0-008	vein	gneiss	Paleozoic	F	Pb	3
0-009	vein	gneiss	Paleozoic	Pb		80
0-010	vein	gneiss	Paleozoic	Pb	Ag	80
1-011	skarn	limestone	Devonian	Fe		1,2,25b
1-012	vein	sandstone	Jurassic	Cu	Ba	25,43,55,57,132
1-013	vein	sandstone	Jurassic	Cu	Ba	25,43,55,57,132
1-014	vein	schist	Silurian	Pb	Ba	25,55,57
1-015	vein	schist	Silurian	Pb	Ba	25,55,57
1-016	vein	schist	Silurian	Pb	Ba	43,55,57
1-017	vein	granite	Devonian	Pb	Ba Cu	25,43,53,57,64,85
1-018	vein	schist/granite	Silurodevonian	Pb	Ba Cu	25
1-019	vein	schist/granite	Silurodevonian	Pb		25,43,55,57,133
1-020	vein	schist/granite	Silurodevonian	Pb		25,43,55,57,133
1-021	vein	schist/granite	Silurodevonian	Pb	Ba Cu	25
1-022	vein	schist/granite	Silurodevonian	Pb	Ba Cu	25
1-023	vein	schist/granite	Silurodevonian	Pb	Ba Cu	25
1-024	vein	schist/granite	Silurodevonian	Pb		25,43,55,57,133
1-025	vein	tonalite	Devonian	Pb	Ba Cu	25,43,54,57,133
1-026	vein	granite	Devonian	Pb	Ba	25,55,57
1-027	vein	granite	Devonian	Pb	Ba	25,55,57
1-028	vein	granite	Devonian	Pb Ba Ag Zn Cu		25,55
1-029	vein	granite	Devonian	Pb Ba Ag Zn Cu		25,55
1-030	vein	granite	Devonian	Pb Ba Ag Zn Cu		25,55
1-031	vein	granite	Devonian	Pb Ba Ag Zn Cu		25,55
1-032	vein	granite	Devonian	Pb Ba Ag Zn Cu		25,55
1-033	vein	granite	Devonian	Pb Cu Ag Zn Ba		43,55,57
1-034	vein	granite	Devonian	Pb		56,81
1-035	fault zone/replacement	mylonite	Jurassic	Cu		86
2-036	fault zone/replacement	mylonite	Jurassic	Cu		86
2-037	stratabound/replacement	sandstone	Jurassic	Cu		47
2-038	stratabound/replacement	sandstone	Jurassic	Cu		102,104
2-039	stratabound/replacement	sandstone	Triassic-Jurassic	Cu	Ag U	47,88,89,101,128,130
2-040	stratabound/replacement	basalt	Jurassic	Cu		47,101,130
2-041	vein	siltstone	Jurassic	Cu	Ba	100
2-042	vein/replacement	sandstone	Triassic	Cu	Ag U	7,65,101,105
2-043	vein	sandstone	Jurassic	Zn		106
2-044	vein	basalt	Jurassic		Ba	106
2-045	vein	basalt	Jurassic		Cu Zn	106
2-046	stratabound/replacement	black shale	Jurassic	Zn Cu		47
2-047	vein	basalt	Jurassic	Zn Pb Cu Ba		47
2-048	vein/replacement	basalt	Jurassic	Cu	Ba	47
2-049	vein	sandstone/siltstone	Jurassic			106

Table 1A, occurrences listed by geographic location, continued.

occurrence no.	name	county	state	quadrangle	latitude	longitude	occurrence type	production [b/]
2-050	Mattabesset River	Hartford	Conn.	Meriden	N41°37'16"	W72°47'30"	mine	n
2-051	Berlin Moores Mill	Hartford	Conn.	Meriden	N41°37'09"	W72°47'40"	mine	n
2-052	limestone quarry	Hartford	Conn.	Meriden	N41°37'09"	W72°49'51"	occurrence	n
2-053	barite vein	Middlesex	Conn.	Middletown	N41°36'53"	W72°43'34"	occurrence	n
2-054	Middletown Lead	Middlesex	Conn.	Middle Haddam	N41°33'33"	W72°36'41"	mine	n
2-055	copper prospect	Middlesex	Conn.	Middle Haddam	N41°31'32"	W72°32'05"	prospect	n
2-056	barite vein	New Haven	Conn.	Southington	N41°33'05"	W72°53'58"	occurrence	n
2-057	New Haven mine	New Haven	Conn.	Southington	N41°33'01"	W72°53'42"	mine	n
2-058	Cheshire Mine 3	New Haven	Conn.	Southington	N41°32'57"	W72°53'41"	mine	u
2-059	Cheshire Mine 2	New Haven	Conn.	Southington	N41°32'43"	W72°54'18"	mine	u
2-060	copper prospect	New Haven	Conn.	Southington	N41°32'35"	W72°53'03"	prospect	n
2-061	Booth & Hinman	New Haven	Conn.	Southington	N41°32'07"	W72°54'25"	mine	n
2-062	Cheshire Mine 1	New Haven	Conn.	Southington	N41°31'11"	W72°54'47"	mine	u
2-063	copper mine	New Haven	Conn.	Meriden	N41°31'11"	W72°49'27"	mine	u
2-064	Jinny Hill	New Haven	Conn.	Mount Carmel	N41°28'49"	W72°53'49"	mine	l
2-065	Cross Rock	New Haven	Conn.	Mount Carmel	N41°28'11"	W72°52'39"	mine	n
2-066	Gaylord	New Haven	Conn.	Mount Carmel	N41°27'43"	W72°53'37"	prospect	n
2-067	Tallman's Mine	New Haven	Conn.	Mount Carmel	N41°26'31"	W72°54'02"	mine	m
2-068	copper prospect	New Haven	Conn.	Mount Carmel	N41°26'17"	W72°54'03"	prospect	n
2-069	Copper Valley	New Haven	Conn.	Mount Carmel	N41°26'15"	W72°54'03"	prospect	n
2-070	copper prospect	New Haven	Conn.	Mount Carmel	N41°23'03"	W72°51'55"	prospect	n
2-071	silver prospect	New Haven	Conn.	Branford	N41°18'02"	W72°50'58"	prospect	n
2-072	Totowa mine	Passaic	N. J.	Patterson	N40°54'00"	W74°13'12"	mine	u
3-073	Glen Ridge Mine	Essex	N. J.	Orange	N40°47'58"	W74°12'09"	mine	m
3-074	Wigwam Brook	Essex	N. J.	Orange	N40°46'52"	W74°13'49"	mine	u
3-075	Dod Mine	Essex	N. J.	Orange	N40°46'51"	W74°13'00"	mine	m
3-076	Schuyler Mine	Bergen	N. J.	Orange	N40°46'43"	W74°07'45"	mine	m
3-077	Laurel Hill	Hudson	N. J.	Weehawken	N40°45'32"	W74°05'11"	occurrence	n
3-078	Hoffman	Somerset	N. J.	Gladstone	N40°38'31"	W74°37'35"	mine	n
3-079	Stony Brook	Somerset	N. J.	Chatham	N40°37'57"	W74°26'38"	mine	m
3-080	Bridgewater	Somerset	N. J.	Bound Brook	N40°36'53"	W74°36'56"	mine	u
3-081	Chimney Rock	Somerset	N. J.	Bound Brook	N40°34'50"	W74°33'30"	mine	n
3-082	Menlo Park Mine	Middlesex	N. J.	Perth Amboy	N40°33'52"	W74°20'01"	mine	n
3-083	New Brunswick	Middlesex	N. J.	Plainfield	N40°30'03"	W74°26'58"	mine	n
3-084	Flemington	Hunterdon	N. J.	Flemington	N40°30'22"	W74°52'11"	mine	n
3-085	Monmouth Junction	Somerset	N. J.	Monmouth Junction	N40°26'26"	W74°34'52"	prospect	n
3-086	Griggstown	Somerset	N. J.	Monmouth Junction	N40°25'34"	W74°36'45"	mine	n
3-087	Hopewell Barite	Mercer	N. J.	Pennington	N40°22'19"	W74°47'13"	mine	m
3-088	Woosamonsa prospect	Mercer	N. J.	Pennington	N40°20'17"	W74°50'10"	prospect	n
4-089	New Hope	Bucks	Penn.	Stockton	N40°22'46"	W74°57'48"	occurrence	n
4-090	Ingham Spring	Bucks	Penn.	Lambertville	N40°21'50"	W74°59'33"	prospect	n
4-091	Solebury	Bucks	Penn.	Lambertville	N40°20'11"	W74°57'14"	mine	n
4-092	Buckmanville	Bucks	Penn.	Lambertville	N40°19'35"	W74°58'52"	mine	n
4-093	Buckingham	Bucks	Penn.	Buckingham	N40°20'09"	W75°03'21"	occurrence	n
4-094	W. Buckmanville	Bucks	Penn.	Buckingham	N40°19'47"	W75°00'57"	prospect	n
4-095	Bushington	Bucks	Penn.	Buckingham	N40°19'03"	W75°04'23"	occurrence	n
4-096	Lodi	Bucks	Penn.	Frenchtown	N40°33'08"	W75°05'20"	occurrence	n
4-097	Tettemer's mine	Bucks	Penn.	Frenchtown	N40°32'00"	W75°05'24"	mine	n
4-098	Uhlerstown	Bucks	Penn.	Frenchtown	N40°31'36"	W75°05'26"	occurrence	n

[a/]

[b/]

occurrence no.	deposit type [a/]	host rock lithology	host rock age	metal associations principal	accessory	References [c/]
2-050	vein	basalt	Jurassic	Pb	Zn Ba	48,87,104
2-051	vein	basalt	Jurassic	Ba		48,87,104
2-052	vein	limestone	Jurassic		F	48
2-053	vein	basalt	Jurassic		Ba	72
2-054	vein	gneiss	Paleozoic	Pb	Ag	92
2-055	hornfels	gneiss/diabase	Paleozoic/Jurassic	Cu		123
2-056	vein	sandstone	Triassic	Ba		33b
2-057	vein	sandstone	Triassic	Ba	Cu Ag Sr	32,33b
2-058	vein/replacement	sandstone	Triassic	Ba		32
2-059	vein/replacement	sandstone	Triassic	Ba		32
2-060	fault zone/replacement	sandstone	Triassic	Cu		33b
2-061	vein	sandstone	Triassic	Ba		32
2-062	vein/replacement	sandstone	Triassic	Ba		32
2-063	fault zone/replacement	sandstone	Jurassic	Cu		48
2-064	vein	sandstone	Triassic	Ba	Cu Ag	32,33
2-065	vein/replacement	sandstone	Triassic	Cu Ba		33
2-066	vein/replacement	sandstone	Triassic	Cu	Ba Ag	32,33,104
2-067	vein/replacement	sandstone	Triassic	Cu	Ba Ag	33,89,104
2-068	hornfels	sandstone/diabase	Triassic/Jurassic	Cu	Ba Ag	33
2-069	vein/replacement	sandstone	Triassic	Cu	Ag	32,33
2-070	hornfels ?/replacement	sandstone	Triassic	Cu		32,33
2-071	sediment-host	siltstone	Jurassic	Ag		62
2-072	stratabound/vein	basalt	Jurassic	Cu		136
3-073	stratabound/replacement	sandstone	Triassic	Cu		73,84,136
3-074	stratabound/replacement	sandstone	Triassic	Cu		136
3-075	stratabound/replacement	sandstone	Triassic	Cu		136
3-076	stratabound/replacement	sandstone	Triassic	Cu	Ag	16,70,84,136
3-077	vein/replacement	diabase	Jurassic	Fe		90
3-078	stratabound/replacement	basalt	Jurassic	Cu		73,84,136
3-079	stratabound/replacement	basalt	Jurassic	Cu		136
3-080	stratabound/replacement	basalt	Jurassic	Cu		18,52,84,129,136
3-081	stratabound/replacement	basalt	Jurassic	Cu		73,136
3-082	vein/fault zone	siltstone	Triassic	Cu		73,84,136
3-083	stratabound/replacement	siltstone	Triassic	Cu	Ag	136
3-084	stratabound/replacement	sandstone	Triassic	Cu		73,84,136
3-085	hornfels/vein	sandstone	Triassic	Cu		76
3-086	stratabound/replacement	sandstone	Triassic	Cu	Ag Au	73,136
3-087	vein	diabase	Jurassic	Ba		15,21
3-088	hornfels/replacement	siltstone/diabase	Triassic/Jurassic	Cu		66,73b,136
4-089	hornfels	siltstone	Triassic	Cu		98,131
4-090	vein	siltstone	Triassic	Cu Ba		98,131,134
4-091	vein/hornfels	siltstone	Triassic	Cu		98,118,131,134
4-092	fault zone/vein	sandstone	Triassic	Ba	Cu	98,118,131,134
4-093	vein	sandstone	Triassic	Ba		44,98
4-094	vein	sandstone	Triassic	Ba Cu		98,131
4-095	vein	sandstone	Triassic	Ba		44,98
4-096	hornfels	siltstone	Triassic	Cu		98,131
4-097	hornfels	shale	Triassic	Cu		98,131
4-098	hornfels	siltstone	Triassic	Cu		98,131

Table 1A, occurrences listed by geographic location, continued.

occurrence no.	name	county	state	quadrangle	latitude	longitude	occurrence type	production [b/]
4-099	Ferndale	Bucks	Penn.	Riegelsville	N40°32'45"	W75°10'20"	occurrence	n
4-100	Bursonville	Bucks	Penn.	Riegelsville	N40°32'25"	W75°13'26"	occurrence	n
4-101	Keller's Church	Bucks	Penn.	Bedminster	N40°27'50"	W75°13'24"	prospect	n
4-102	Hagersville	Bucks	Penn.	Bedminster	N40°24'25"	W75°14'54"	occurrence	n
4-103	New Galena	Bucks	Penn.	Doylestown	N40°19'48"	W75°11'01"	mine	l
4-104	Schuylkill Falls	Philadelphia	Penn.	Philadelphia	N39°58'57"	W75°11'16"	occurrence	n
4-105	Diehl's Mine	Bucks	Penn.	Quakertown	N40°25'03"	W75°18'08"	occurrence	n
4-106	Sellersville	Bucks	Penn.	Telford/Quakertwn	N40°22'09"	W75°18'06"	occurrence	n
4-107	Drakes Crossrd.	Montgomery	Penn.	Telford	N40°16'09"	W75°18'54"	occurrence	n
4-108	Leithsville mine	Northampton	Penn.	Hellertown	N40°33'17"	W75°20'09"	mine	u
4-109	Coopersburg	Lehigh	Penn.	Milford Square	N40°29'56"	W75°24'49"	prospect	n
4-110	Pennsburg	Montgomery	Penn.	Milford Square	N40°24'19"	W75°28'57"	occurrence	n
4-111	Red Hill	Montgomery	Penn.	Milford Square	N40°23'06"	W75°28'23"	occurrence	n
4-112	Sumneytown	Montgomery	Penn.	Perkiomenville	N40°19'54"	W75°25'37"	occurrence	n
4-113	Kibblehouse quarry	Montgomery	Penn.	Perkiomenville	N40°19'27"	W75°28'21"	occurrence	n
4-114	Hendricks Station	Montgomery	Penn.	Perkiomenville	N40°19'09"	W75°27'47"	prospect	n
4-115	Kober's mine	Montgomery	Penn.	Perkiomenville	N40°19'02"	W75°26'11"	mine	u
4-116	Karl's mine	Montgomery	Penn.	Perkiomenville	N40°19'01"	W75°29'38"	mine	u
4-117	Young's mine	Montgomery	Penn.	Perkiomenville	N40°18'33"	W75°28'02"	mine	n
4-118	Schwencksville	Montgomery	Penn.	Perkiomenville	N40°16'20"	W75°27'25"	prospect	n
4-119	Lederachsville	Montgomery	Penn.	Perkiomenville	N40°16'05"	W75°23'19"	occurrence	n
4-120	Graters Ford	Montgomery	Penn.	Collegeville	N40°13'46"	W75°27'28"	occurrence	n
4-121	Collegeville	Montgomery	Penn.	Collegeville	N40°12'24"	W75°27'20"	occurrence	n
4-122	Arcola	Montgomery	Penn.	Collegeville	N40°09'29"	W75°26'40"	occurrence	n
4-123	Shannonville	Montgomery	Penn.	Collegeville	N40°08'30"	W75°25'28"	prospect	n
4-124	Perkiomen mine	Montgomery	Penn.	Collegeville	N40°07'56"	W75°26'16"	mine	m
4-125	Whim mine	Montgomery	Penn.	Collegeville	N40°07'50"	W75°26'22"	mine	m
4-126	Ecton mine	Montgomery	Penn.	Collegeville	N40°07'41"	W75°26'31"	mine	m
4-127	Wetherill mine	Montgomery	Penn.	Valley Forge	N40°07'22"	W75°26'39"	mine	m
4-128	Port Kennedy	Montgomery	Penn.	Valley Forge	N40°07'17"	W75°24'54"	prospect	n
4-129	Jug Hollow mine	Chester	Penn.	Valley Forge	N40°05'36"	W75°29'09"	mine	m
4-130	Congo 3	Montgomery	Penn.	Sassamansville	N40°21'52"	W75°34'22"	prospect	n
4-131	Fegley mine	Berks	Penn.	Sassamansville	N40°21'48"	W75°37'08"	mine	n
4-132	Congo 2	Montgomery	Penn.	Sassamansville	N40°21'48"	W75°35'15"	prospect	n
4-133	Congo 1	Montgomery	Penn.	Sassamansville	N40°21'19"	W75°35'15"	prospect	n
4-134	Brendlinger mine	Montgomery	Penn.	Sassamansville	N40°20'21	W75°34'53"	prospect	n
4-135	Layfield	Montgomery	Penn.	Sassamansville	N40°19'18"	W75°34'44"	occurrence	n
4-136	Gilbertville	Montgomery	Penn.	Sassamansville	N40°18'47"	W75°36'58"	occurrence	n
4-137	Pennsylvania mine	Montgomery	Penn.	Sassamansville	N40°16'16"	W75°35'32"	mine	n
4-138	Saratoga	Montgomery	Penn.	Phoenixville	N40°14'54"	W75°35'43"	prospect	n
4-139	Phoenix. Tunnel	Chester	Penn.	Phoenixville	N40°09'20"	W75°31'05"	occurrence	n
4-140	Morris Copper	Chester	Penn.	Phoenixville	N40°07'39"	W75°30'46"	mine	n
4-141	Charlestown mine	Chester	Penn.	Malvern	N40°06'39"	W75°32'14"	mine	n
4-142	Wheatley Mine	Chester	Penn.	Malvern	N40°06'20"	W75°31'02"	mine	m
4-143	Chester Co. mine	Chester	Penn.	Malvern	N40°06'20"	W75°31'08"	mine	m
4-144	Montgomery Co.	Chester	Penn.	Malvern	N40°06'18"	W75°31'32"	mine	m
4-145	SW Chester mine	Chester	Penn.	Malvern	N40°06'15"	W75°31'18"	mine	m
4-146	Brookdale mine	Chester	Penn.	Malvern	N40°06'03"	W75°31'16"	mine	m
4-147	Phoenix mine	Chester	Penn.	Malvern	N40°05'50"	W75°31'26"	mine	m

occurrence no.	deposit type [a/]	host rock lithology	host rock age	metal associations principal	accessory	References [c/]
4-099	hornfels	siltstone	Triassic	Cu		98,131
4-100	hornfels	siltstone	Triassic	Cu		98,131
4-101	sediment-host	shale	Triassic	Cu		98,131
4-102	sediment-host	sandstone	Triassic	Cu		98,131
4-103	vein/fault zone	black shale	Triassic	Pb Zn Ag	Au Cu	22,28,98,110,111,134
4-104	vein		Triassic	Pb	Zn	44,78,98
4-105	diabase-host/vein	diabase	Jurassic	Au	Cu	4,44,98,131
4-106	sediment-host	sandstone	Triassic	Cu		27,44,98
4-107	sediment-host	sandstone	Triassic	Cu		44,98,131
4-108	sediment-host ?	conglomerate	Triassic	Cu		27,98
4-109	hornfels	siltstone	Triassic	Cu		98
4-110	sediment-host	sandstone	Triassic	Cu		44,98,131
4-111	sediment-host	shale	Triassic	Cu		98,131
4-112	hornfels	siltstone	Triassic	Cu		44,98
4-113	hornfels	siltstone	Triassic	Cu	Co	112,116
4-114	hornfels	siltstone	Triassic	Cu		44,98,131
4-115	hornfels/fault zone ?	shale	Triassic	Cu	Pb	4,44,84,98,131
4-116	vein/hornfels ?	shale	Triassic	Cu		4,44,84,98,131
4-117	hornfels	siltstone	Triassic	Cu	Au	4,44,84,98,131
4-118	hornfels ?	siltstone	Triassic	Cu		98
4-119	sediment-host	sandstone	Triassic	Cu		44,98,131
4-120	sediment-host	sandstone	Triassic	Cu		44,98,131
4-121	sediment-host	sandstone	Triassic	Cu		44,98,131
4-122	vein		Triassic	Cu		44,98
4-123	vein		Triassic	Cu		44,78,98
4-124	vein	sandstone	Triassic	Pb Cu Zn		22,98,111,135
4-125	vein/fault zone	sandstone	Triassic	Pb Cu Zn	Ag	22,98,111,135
4-126	vein	sandstone	Triassic	Pb	Zn Ag	22,98,111,135
4-127	vein	sandstone	Triassic	Pb	Cu Zn	22,98,111,135
4-128	vein		Triassic	Cu		44,78,98
4-129	vein	schist/gneiss	Precambrian	Ba Zn Cu Pb		44,77,96,111
4-130	diabase-host/vein	diabase	Jurassic	Cu		98,117,131
4-131	vein/replacement	diabase	Jurassic	Fe		44,51,98,117
4-132	diabase-host/vein	diabase	Jurassic	Cu		98,117,131
4-133	diabase-host/vein	diabase	Jurassic	Cu		98,117,131
4-134	hornfels ?	siltstone	Triassic	Cu		84,98,131
4-135	sediment-host	sandstone	Triassic	Cu		44,98,131
4-136	sediment-host	sandstone	Triassic	Cu		44,98,131
4-137	hornfels	siltstone	Triassic	Cu		98,118,131
4-138	sediment-host	sandstone	Triassic	Cu		5,98
4-139	vein		Triassic	Zn		44,98
4-140	vein		Triassic	Cu		78,98
4-141	vein	gneiss	Precambrian	Pb Ba Zn Cu Ag		95,111,126
4-142	vein	gneiss/siltstone	Precambrian/Triassic	Pb Zn Cu Ag	Mo	12,50,59,95,108,111
4-143	vein	gneiss	Precambrian	Pb Zn Cu Ag		5,38,77,91,111,126
4-144	vein	gneiss	Precambrian	Zn Pb Cu Ag		78,91,96,98,111,126
4-145	vein	granodiorite	Precambrian	Pb Zn Cu Ag		5,38,77,91,111,126
4-146	vein	gneiss	Precambrian	Zn Pb Cu Ag		12,50,59,96,108,111
4-147	vein	gneiss	Precambrian	Zn Pb Ag Cu		12,50,59,96,108,111

Table 1A, occurrences listed by geographic location, continued.

occurrence no. [a/]	name	county	state	quadrangle	latitude	longitude	occurrence type	prod-uction [b/]
4-148	Pethericks Penn	Chester	Penn.	Malvern	N40°05'49"	W75°31'11"	prospect	n
4-149	Pennypacker mine	Chester	Penn.	Malvern	N40°05'17"	W75°31'10"	mine	n
4-150	Boyertown mine	Berks	Penn.	Boyertown	N40°19'47"	W75°38'28"	mine	n
4-151	Stonersville	Berks	Penn.	Birdsboro	N40°19'47"	W75°48'39"	prospect	n
4-152	Brower mine	Berks	Penn.	Boyertown	N40°19'10"	W75°39'01"	mine	m
4-153	Snydersville	Berks	Penn.	Birdsboro	N40°18'25"	W75°49'26"	occurrence	n
4-154	Esterly mine	Berks	Penn.	Birdsboro	N40°17'30"	W75°50'55"	mine	u
4-155	Gickerville	Berks	Penn.	Birdsboro	N40°16'26"	W75°51'19"	occurrence	n
4-156	Dyer Quarry	Berks	Penn.	Birdsboro	N40°15'54"	W75°51'18"	occurrence	n
4-157	Glasgow	Montgomery	Penn.	Boyertown	N40°15'56"	W75°39'08"	occurrence	n
4-158	Bleims mine	Montgomery	Penn.	Boyertown	N40°15'55"	W75°37'52"	prospect	n
4-159	Unnamed Fe mine	Chester	Penn.	Elverson	N40°11'49"	W75°45'37"	mine	u
4-160	French Creek mines	Chester	Penn.	Pottstown	N40°11'05"	W75°43'44"	mine	l
4-161	Knauertown	Chester	Penn.	Pottstown	N40°10'59"	W75°43'36"	prospect	n
4-162	Pine Swamp	Chester	Penn.	Elverson	N40°10'53"	W75°46'34"	prospect	n
4-163	Jones-Kinney mines	Berks	Penn.	Elverson	N40°10'23"	W75°51'00"	mine	l
4-164	Hopewell mine	Chester	Penn.	Elverson	N40°10'12"	W75°48'09"	mine	u
4-165	Leighton mine	Chester	Penn.	Elverson	N40°09'53"	W75°46'38"	mine	m
4-166	Warwick mine	Chester	Penn.	Elverson	N40°09'41"	W75°46'23"	mine	l
4-167	Steels mine	Chester	Penn.	Elverson	N40°09'35"	W75°46'00"	mine	u
4-168	S. of Reading	Berks	Penn.	Reading	N40°18'49"	W75°53'25"	occurrence	n
4-169	Raudenbush mine	Berks	Penn.	Reading	N40°18'33"	W75°55'45"	mine	m
4-170	Fritz Island mine	Berks	Penn.	Reading	N40°18'09"	W75°55'16"	mine	l
4-171	Grace Mine	Berks	Penn.	Morgantown	N40°10'36"	W75°53'30"	mine	l
4-172	Bylers mine	Berks	Penn.	Morgantown	N40°09'45"	W75°53'04"	mine	l
5-173	Wheatfield mine	Berks	Penn.	Sinking Spring	N40°17'39"	W76°01'59"	mine	l
5-174	Ruth mine	Berks	Penn.	Sinking Spring	N40°17'30"	W76°03'15"	mine	m
5-175	Doner mine	Lebanon	Penn.	Lebanon	N40°16'46"	W76°23'03"	mine	m
5-176	Mt. Pleasant	Lebanon	Penn.	Palmyra	N40°16'37"	W76°32'27"	prospect	n
5-177	Rexmont Reservoir	Lebanon	Penn.	Lebanon	N40°16'32"	W76°22'12"	prospect	n
5-178	Carper mine	Lebanon	Penn.	Palmyra	N40°16'14"	W76°31'23"	mine	m
5-179	Cornwall mine	Lebanon	Penn.	Lebanon	N40°16'00"	W76°24'43"	mine	l
5-180	Hummelstown	Dauphin	Penn.	Hershey	N40°15'16"	W76°40'49"	mine	m
5-181	Glenwood Station	Lancaster	Penn.	Leola	N40°11'54"	W76°07'51"	occurrence	n
5-182	Lecron's	York	Penn.	Dover	N40°02'07"	W76°45'36"	mine	n
5-183	Safe Harbor	Lancaster	Penn.	Safe Harbor	N39°55'45"	W76°22'29"	occurrence	n
5-184	Reeser's Summit	York	Penn.	Steelton	N40°11'57"	W76°51'41"	occurrence	n
5-185	Mt. Pleasant 2	York	Penn.	Wellsville	N40°07'38"	W76°56'17"	prospect	n
5-186	Mt. Pleasant 1	York	Penn.	Wellsville	N40°07'05"	W76°56'56"	prospect	n
5-187	Wellsville 2	York	Penn.	Wellsville	N40°03'55"	W76°55'32"	prospect	n
5-188	Wellsville 1	York	Penn.	Wellsville	N40°03'51"	W76°55'49"	prospect	n
5-189	Rossville roadcut	York	Penn.	Wellsville	N40°04'22"	W76°55'28"	occurrence	n
5-190	Harman mine	York	Penn.	Wellsville	N40°03'37"	W76°58'02"	mine	n
5-191	Brenneman mine	York	Penn.	Wellsville	N40°03'25"	W76°57'05"	mine	n
5-192	Altland mine	York	Penn.	Wellsville	N40°03'22"	W76°58'07"	mine	n
5-193	Comfort mine	York	Penn.	Wellsville	N40°03'22"	W76°58'07"	mine	n
5-194	Cadwalader mine	York	Penn.	Wellsville	N40°03'12"	W76°58'05"	mine	n
5-195	Marshall mine	York	Penn.	Wellsville	N40°03'10"	W76°57'07"	mine	n

occurrence no.	deposit type [a/]	host rock lithology	host rock age	metal associations principal accessory	References [c/]
4-148	vein		Triassic	Pb	78,98
4-149	vein	granodiorite	Precambrian	Pb Cu	5,96,111
4-150	skarn		Triassic	Fe	20,44,51,98,117
4-151	skarn		Triassic ?	Fe	98,117
4-152	skarn	shale	Triassic	Fe	98,117
4-153	hornfels	shale	Triassic	Cu	27,44,98
4-154	skarn	siltstone	Triassic	Fe	20,98,117
4-155	diabase-host/vein	diabase	Jurassic	As Co	44,98
4-156	diabase-host/vein	diabase	Jurassic	Cu	112,114
4-157	sediment-host	sandstone	Triassic	Cu	44,98,131
4-158	sediment-host	sandstone	Triassic	Cu	44,98
4-159	skarn	shale/sandstone	Triassic	Fe	5,98
4-160	skarn	marble/gneiss	Precambrian	Fe Cu Zn Co	5,44,68,98,109
4-161	skarn		Triassic	Fe	5,98
4-162	skarn/replacement	marble/gneiss	Precambrian	Fe	37,98,110
4-163	skarn	dolomite/shale	Cambrian	Fe Cu	44,63,96,98,117,121
4-164	skarn	marble/gneiss	Precambrian	Fe	5,41,44,96,98,99,103
4-165	skarn/replacement	gneiss/marble ?	Precambrian	Fe	5,96,98
4-166	skarn	lmst. conglomerate	Triassic	Fe	5,44,96,98,117
4-167	skarn/replacement	gneiss/marble ?	Precambrian	Fe	5,44,96,98
4-168	hornfels	siltstone	Triassic	Cu	44,98
4-169	skarn	dolomite	Cambrian	Fe	20,98,117
4-170	skarn	dolomite	Cambrian	Fe Cu	20,44,98,117
4-171	skarn	limestone/dolomite	Cambrian	Fe Cu Co Ag Au	6,107
4-172	skarn	limestone	Cambrian	Fe	5,98
5-173	skarn	limestone/dolomite	Cambro-Ordovician	Fe	20,44,98,117
5-174	skarn	limestone/dolomite	Cambro-Ordovician	Fe	20,44,98,117
5-175	skarn	limestone	Paleozoic	Fe	69,98,117
5-176	skarn		Triassic	Fe	98,117
5-177	skarn	limestone/shale	Paleozoic	Fe	98,117
5-178	hornfels/replacement	slate/shale	Ordovician	Fe	40,98,117
5-179	skarn	limestone/dolomite	Cambrian	Fe Cu Au Ag Co	39,46,67,69,98,117
5-180	skarn	sandstone	Triassic	Fe	98,117
5-181	sediment-host	shale	Triassic	Cu	9,44,98
5-182	sediment-host	sandstone	Triassic	Cu	31,98,122
5-183	vein	dolomite	Cambrian	Zn Ba	8,98
5-184	hornfels		Triassic	Cu	98,111
5-185	skarn		Triassic	Fe	29,98,122
5-186	skarn		Triassic	Fe	29,98,122
5-187	skarn		Triassic	Fe	29,98,122
5-188	skarn		Triassic	Fe	29,98,122
5-189	hornfels	siltstone	Triassic	Cu	114,115
5-190	skarn	siltstone/diabase	Triassic/Jurassic	Fe	29,98
5-191	skarn		Triassic	Fe	29,98
5-192	skarn		Triassic	Fe	29,98
5-193	skarn		Triassic	Fe	29,98
5-194	skarn		Triassic	Fe	29,98
5-195	skarn		Triassic	Fe	29,98

Table 1A, occurrences listed by geographic location, continued.

occurrence no.	name	county	state	quadrangle	latitude	longitude	occurrence type	prod-uction
5-196	Sluthower mine	York	Penn.	Wellsville	N40°02'54"	W76°57'04"	mine	n
5-197	Minebank School 1	York	Penn.	Wellsville	N40°02'27"	W76°58'01"	mine	m
5-198	Minebank School 2	York	Penn.	Wellsville	N40°01'58"	W76°58'27"	mine	m
5-199	Roler	York	Penn.	Wellsville	N40°01'21"	W76°55'51"	prospect	n
5-200	Smith prospect	York	Penn.	Wellsville	N40°00'30"	W76°57'09"	prospect	n
5-201	Grantham mines	York	Penn.	Mechanicsburg	N40°07'36"	W77°01'36"	mine	m
5-202	Dillsburg N	York	Penn.	Dillsburg	N40°07'03"	W77°02'29"	prospect	n
5-203	McCormick mine	York	Penn.	Dillsburg	N40°06'46"	W77°00'57"	mine	l
5-204	Longnecker mine	York	Penn.	Dillsburg	N40°06'43"	W77°00'53"	mine	l
5-205	King mine	York	Penn.	Dillsburg	N40°06'41"	W77°00'17"	mine	m
5-206	Underwood mine	York	Penn.	Dillsburg	N40°06'40"	W77°00'59"	mine	l
5-207	Jauss mine	York	Penn.	Dillsburg	N40°06'39"	W77°00'23"	mine	l
5-208	Altland mine	York	Penn.	Dillsburg	N40°06'34"	W77°00'43"	mine	m
5-209	Smyser mine	York	Penn.	Dillsburg	N40°06'34"	W77°00'54"	mine	m
5-210	Bell mine	York	Penn.	Dillsburg	N40°06'24"	W77°00'43"	mine	l
5-211	Logan mine	York	Penn.	Dillsburg	N40°06'06"	W77°00'20"	mine	m
5-212	Cox mine	York	Penn.	Dillsburg	N40°06'06"	W77°00'13"	mine	m
5-213	Grove mine	York	Penn.	Dillsburg	N40°06'04"	W77°00'39"	mine	m
5-214	Bender mine	York	Penn.	Dillsburg	N40°05'51"	W77°03'01"	mine	n
5-215	Franklintown 1	York	Penn.	Dillsburg	N40°05'14"	W77°02'36"	prospect	n
5-216	Franklintown 2	York	Penn.	Dillsburg	N40°04'13"	W77°02'48"	prospect	n
5-217	Franklintown 3	York	Penn.	Dillsburg	N40°04'12"	W77°03'00"	prospect	n
5-218	Franklintown 4	York	Penn.	Dillsburg	N40°02'39"	W77°03'00"	prospect	n
5-219	Lichte mine	York	Penn.	Dillsburg	N40°01'12"	W77°01'34"	mine	m
5-220	Clapper farm	Adams	Penn.	Hampton	N39°59'24"	W77°00'21"	occurrence	n
5-221	Center Mills 1	Adams	Penn.	Biglerville	N39°58'44"	W77°10'39"	prospect	n
5-222	Center Mills 2	Adams	Penn.	Biglerville	N39°58'03"	W77°12'04"	prospect	n
5-223	Idaville	Adams	Penn.	Biglerville	N39°57'27"	W77°12'24"	prospect	n
5-224	Heidlersburg	Adams	Penn.	Biglerville	N39°55'18"	W77°09'38"	occurrence	n
5-225	Stone Jug mine	Adams	Penn.	Biglerville	N39°55'12"	W77°10'12"	mine	n
5-226	Hunterstown	Adams	Penn.	Bigglerville	N39°53'21"	W77°09'35"	prospect	n
5-227	Gettysburg	Adams	Penn.	Gettysburg	N39°50'03"	W77°12'46"	occurrence	n
5-228	Bonneauville	Adams	Penn.	Gettysburg	N39°48'40"	W77°08'17"	occurrence	n
5-229	Teeter's Quarry	Adams	Penn.	Gettysburg	N39°48'07"	W77°12'43"	occurrence	n
5-230	Cashtown 2	Adams	Penn.	Arendtsville	N39°53'26"	W77°20'31"	prospect	n
5-231	Cashtown 1	Adams	Penn.	Arendtsville	N39°53'23"	W77°20'17"	prospect	n
5-232	Orrtana	Adams	Penn.	Fairfield	N39°50'38"	W77°18'24"	occurrence	n
5-233	Carr Hill	Adams	Penn.	Fairfield	N39°49'27"	W77°18'34"	prospect	n
5-234	Fairfield	Adams	Penn.	Fairfield	N39°48'43"	W77°20'50"	prospect	n
5-235	McNair Farm	Adams	Penn.	Fairfield	N39°46'38"	W77°21'30"	prospect	n
6-236	Boyds barite	Montgomery	Md.	Germantown	N39°10'59"	W77°19'37"	occurrence	n
6-237	Dawsonville 1	Montgomery	Md.	Germantown	N39°07'54"	W77°20'06"	occurrence	n
6-238	Dawsonville 2	Montgomery	Md.	Germantown	N39°07'42"	W77°20'07"	occurrence	n
6-239	Seneca Creek	Montgomery	Md.	Seneca	N39°06'11"	N77°20'38"	occurrence	n
6-240	Sugarland	Montgomery	Md.	Sterling	N39°05'58"	W77°23'52"	mine	n
6-241	Waterford gold	Loudoun	Va.	Waterford	N39°07'57"	W77°33'05"	occurrence	n
6-242	Goose Creek	Loudoun	Va.	Leesburg	N39°05'53"	W77°30'01"	prospect	n
6-243	Sugarland Run	Loudoun	Va.	Seneca	N39°02'22"	W77°21'46"	prospect	n

occurrence no.	deposit type [a/]	host rock lithology	host rock age	metal associations principal	accessory	References [c/]
5-196	skarn		Triassic	Fe		29,98
5-197	skarn	limestone	Triassic	Fe		29,98,117
5-198	skarn	limestone	Triassic	Fe		29,98,117
5-199	skarn		Triassic	Fe		98,122
5-200	skarn		Triassic	Fe		29,98
5-201	skarn	lmst. conglomerate	Triassic	Fe		20,29,98,117
5-202	skarn	lmst. conglomerate	Triassic	Fe		98,122
5-203	skarn	lmst. conglomerate	Triassic	Fe		20,29,49,61,83,98,117
5-204	skarn	lmst. conglomerate	Triassic	Fe		20,29,49,61,83,98,117
5-205	skarn	lmst. conglomerate	Triassic	Fe		20,29,49,61,83,98,117
5-206	skarn	lmst. conglomerate	Triassic	Fe		20,29,49,61,83,98,117
5-207	skarn	lmst. conglomerate	Triassic	Fe		20,29,49,61,83,98,117
5-208	skarn	lmst. conglomerate	Triassic	Fe		20,29,49,61,83,98,117
5-209	skarn	lmst. conglomerate	Triassic	Fe		20,29,49,61,83,98,117
5-210	skarn	lmst. conglomerate	Triassic	Fe		20,29,49,61,83,98,117
5-211	skarn	lmst. conglomerate	Triassic	Fe		20,29,49,61,83,98,117
5-212	skarn	lmst. conglomerate	Triassic	Fe		20,29,49,61,83,98,117
5-213	skarn	lmst. conglomerate	Triassic	Fe		20,29,49,61,83,98,117
5-214	skarn	shale	Triassic	Fe		29,68,98,117
5-215	skarn		Triassic	Fe		29,98,117
5-216	skarn		Triassic	Fe		29,98,117
5-217	skarn		Triassic	Fe		29,98,117
5-218	skarn		Triassic	Fe		29,98,117
5-219	skarn	sandstone	Triassic	Fe		29,98
5-220	hornfels	xenolith/diabase	Jurassic	Cu Au Ag		114
5-221	skarn		Triassic	Fe		98,119,120
5-222	skarn		Triassic	Fe		98,119,120
5-223	skarn		Triassic	Fe		98,119
5-224	hornfels	siltstone	Triassic	Cu		98,120
5-225	hornfels/replacement	sandstone/shale	Triassic	Cu	Au Ag Mo	113
5-226	hornfels	siltstone/shale	Triassic	Cu	Au	58,79,98
5-227	hornfels		Triassic	Cu		98,119
5-228	sediment-host	sandstone	Triassic	Cu		30,98
5-229	hornfels	shale	Triassic	Cu		68,98
5-230	skarn		Triassic	Fe		84,98,120
5-231	skarn		Triassic	Fe		84,98,120
5-232	skarn		Triassic	Fe		98,119
5-233	skarn		Triassic	Fe		98,119,120
5-234	hornfels	siltstone	Triassic	Cu Fe		30,98,119,120
5-235	skarn		Triassic	Fe		98,119
6-236	vein	diabase	Jurassic	Ba		94
6-237	placer	gravel	Quaternary	Au		11
6-238	placer	gravel	Quaternary	Au		11
6-239	placer	gravel	Quaternary	Hg		11
6-240	stratabound/replacement	sandstone	Triassic	Cu		11,34,36,71
6-241	placer	gravel	Quaternary	Au		79
6-242	hornfels/replacement	siltstone	Triassic	Cu		11,36,75,93,125,130
6-243	stratabound/replacement	sandstone	Triassic	Cu Ag		11

Table 1A, occurrences listed by geographic location, continued.

occurrence no. [a/]	name	county	state	quadrangle	latitude	longitude	occurrence type	prod-uction [b/]
6-244	Sterling	Loudoun	Va.	Sterling	N39°00'20"	W77°26'05"	occurrence	n
6-245	Theodora	Fairfax	Va.	Herndon	N38°56'59"	W77°25'23"	mine	n
6-246	Spencer Farm	Fairfax	Va.	Herndon	N38°54'17"	W77°28'35"	prospect	n
6-247	Chantilly prospect	Fairfax	Va.	Herndon	N38°53'20"	W77°25'10"	prospect	n
6-248	Cub Run Copper	Fairfax	Va.	Herndon	N38°52'54"	W77°28'15"	occurrence	n
6-249	Chantilly	Fairfax	Va.	Herndon	N38°52'50"	W77°25'08"	occurrence	n
6-250	Fairfax Quarry	Fairfax	Va.	Manassas	N38°49'33"	W77°29'19"	occurrence	n
6-251	Bull Run	Fairfax	Va.	Manassas	N38°48'27"	W77°29'23"	occurrence	n
6-252	Manassas	Prince William	Va.	Independent Hill	N38°43'43"	W77°28'27"	occurrence	n
6-253	Brentsville	Prince William	Va.	Independent Hill	N38°41'21"	W77°29'56"	prospect	n
6-254	St. Stephens	Fauquier	Va.	Catlett	N38°40'49"	W77°40'08"	mine	m
6-255	Calverton	Fauquier	Va.	Catlett	N38°39'10"	W77°40'39"	occurrence	n
6-256	Cedar Run	Prince William	Va.	Nokesville	N38°37'32"	W77°34'41"	mine	m
6-257	Botts barite	Faquier	Va.	Midland	N38°34'01"	W77°39'32"	occurrence	n
6-258	Elk Run mine	Faquier	Va.	Midland	N38°33'21"	W77°40'12"	prospect	n
6-259	Bealeton mine	Faquier	Va.	Midland	N38°33'15"	W77°43'54"	mine	n
6-260	Gear Barite	Fauquier	Va.	Midland	N38°32'45"	W77°43'32"	prospect	n
6-261	Kemper	Fauquier	Va.	Midland	N38°32'29"	W77°43'30"	prospect	n
6-262	Mountain Run	Culpeper	Va.	Culpeper East	N38°27'09"	W77°54'09"	occurrence	n
6-263	Stevensburg	Culpeper	Va.	Culpeper East	N38°26'20"	W77°54'56"	occurrence	n
6-264	Culpeper prospect	Culpeper	Va.	Culperer East	N38°26'08"	W77°59'44"	occurrence	n
6-265	Batna	Culpeper	Va.	Culpeper East	N38°23'50"	W77°53'29"	prospect	n
6-266	Somerset mine	Orange	Va.	Gordonsville	N38°12'56"	W78°13'29"	mine	n
7-267	Albemarle mine	Albermarle	Va.	Schuyler	N37°50'11"	W78°42'25"	mine	u
7-268	Scottsville barite	Albermarle	Va.	Esmont	N37°48'32"	W78°34'35"	occurrence	n
7-269	Dolan Property	Nelson	Va.	Howardsville	N37°42'19"	W78°40'33"	occurrence	n
8-270	Bell Branch gold	Davie	N. C.	Lone Hickory	N36°02'38"	W80°39'10"	occurrence	n
9-271	Whomble prospect	Orange	N. C.	Merry Oaks	N35°38'18"	W79°07'17"	prospect	n
9-272	Clegg copper mine	Lee	N. C.	Colon	N35°35'20"	W79°08'17"	mine	n
9-273	Tennessee Copper	Moore	N. C.	Bear Creek	N35°30'08"	W79°25'06"	prospect	n
9-274	Harrisville barite	Montgomery	N. C.	Harrisville	N35°12'42"	W79°48'57"	occurrence	n
9-275	Mangum gold 2	Richmond	N. C.	Mangum	N35°07'25"	W79°58'30"	occurrence	n
9-276	Mangum gold 1	Richmond	N. C.	Mangum	N35°07'20"	W79°59'50"	occurrence	n

a/ The area of the occurrence location is indicated by the first number of the occurrence number category. 0 indicates areas north of the Hartford basin in New Hampshire. 1 indicates the Hartford basin and vicinity, Massachusetts. 2 indicates the Hartford basin and vicinity, Connecticut. 3 indicates the Newark basin, New Jersey. 4 indicates the Newark basin and vicinity, Pennsylvania. 5 indicates the Gettysburg basin and vicinity, Pennsylvania. 6 indicates the Culpeper basin, Maryland and Virginia. 7 indicates other in Virginia. 8 indicates the Davie County basin area, North Carolina. 9 indicates the Deep River basin area, North Carolina.

b/ Ore production history and size of occurrence. An l, m, n, or u indicates ore production or reserves greater than 100,000 tons, between 1000 and 100,000 tons, less than 1000 tons, or unknown, respectively.

c/ Number of reference citation, as listed in Table 1, section E.

occurrence no.	deposit type [a/]	host rock lithology	host rock age	metal associations principal	accessory	References [c/]
6-244	stratabound/replacement	siltstone	Triassic	Cu		11
6-245	hornfels	siltstone/sandstone	Triassic	Cu		11,36,60,75
6-246	hornfels/replacement	sandstone	Triassic	Cu		11,75
6-247	hornfels/replacement	siltstone	Triassic	Cu		11,75
6-248	hornfels/replacement	sandstone/siltstone	Triassic	Cu		24
6-249	stratabound/replacement	sandstone/shale	Triassic	Cu		11,17
6-250	diabase-host/vein	diabase	Jurassic	Cu		19,75
6-251	placer	gravel	Quaternary	Au		11
6-252	vein	siltstone/shale	Triassic	Ba		75,93
6-253	sediment-host	shale	Triassic	Cu		11,93
6-254	vein	siltstone/diabase	Triassic/Jurassic	Ba		11,23,36,71,75,93
6-255	stratabound/replacement	black shale	Triassic	Zn		45
6-256	vein/fault zone	siltstone	Triassic	Ba		11,23,36,71,75
6-257	vein	shale	Triassic	Ba		23,75
6-258	fault zone/vein	siltstone/shale	Triassic	Cu		74,75
6-259	hornfels/replacement	siltstone/shale	Triassic	Cu		75,93
6-260	vein	siltstone/sandstone	Triassic	Ba		23,36,75
6-261	vein	siltstone	Triassic	Ba		23,36,71,75
6-262	hornfels/replacement	sandstone	Triassic	Cu	Fe U	35
6-263	stratabound/replacement	black shale	Triassic	Zn Cu		11
6-264	hornfels/skarn	lmst. conglomerate	Triassic	Cu	Fe	75,93
6-265	hornfels	siltstone	Triassic	Cu		36,75,93,130
6-266	stratabound/replacement	sandstone/shale	Triassic	Cu		75,93,97,130
7-267	vein	gneiss	Cambrian	Zn Pb Ag		42,82,127
7-268	vein	sandstone	Triassic	Ba		124
7-269	vein/fault zone	shale	Triassic	Cu		26,75
8-270	placer	gravel	Quaternary	Au		79
9-271	placer	gravel	Quaternary	Au		10
9-272	vein	metavolcanic	Paleozoic	Cu		14
9-273	vein/replacement	metavolcanic	Paleozoic	Cu		14
9-274	vein	diabase	Jurassic	Ba		13
9-275	placer	sandstone	Triassic	Au		79
9-276	placer	sandstone	Triassic	Au		79

Table 1. Inventory of metal mines and occurrences associated with the early Mesozoic basins of the Eastern U. S.
Section B. Occurrences listed by deposit type

occurrence no.	name	state	occurrence type [a/]	production [b/]	deposit type	metal associations principal	accessory	References [c/]
I. METAL OCCURRENCES ASSOCIATED WITH IGNEOUS INTRUSIONS								
A. SKARN DEPOSITS								
1-011	Bernardston	Mass.	occurrence	n	skarn	Fe		1,2,25b
4-150	Boyertown mine	Penn.	mine	n	skarn	Fe		20,44,51,98,117
4-151	Stonersville	Penn.	prospect	n	skarn	Fe		98,117
4-152	Brower mine	Penn.	mine	m	skarn	Fe		98,117
4-154	Esterly mine	Penn.	mine	u	skarn	Fe		20,98,117
4-159	Unnamed Fe mine	Penn.	mine	u	skarn	Fe		5,98
4-160	French Creek mines	Penn.	mine	l	skarn	Fe Cu	Zn Co	5,44,68,98,109
4-161	Knauertown	Penn.	prospect	n	skarn	Fe		5,98
4-162	Pine Swamp	Penn.	prospect	n	skarn/replacement	Fe		37,98,110
4-163	Jones-Kinney mines	Penn.	mine	l	skarn	Fe	Cu	44,63,96,98,117,121
4-164	Hopewell mine	Penn.	mine	u	skarn	Fe		5,41,44,96,98,99,103
4-165	Leighton mine	Penn.	mine	m	skarn/replacement	Fe		5,96,98
4-166	Warwick mine	Penn.	mine	l	skarn	Fe		5,44,96,98,117
4-167	Steels mine	Penn.	mine	u	skarn/replacement	Fe		5,44,96,98
4-169	Raudenbush mine	Penn.	mine	m	skarn	Fe		20,98,117
4-170	Fritz Island mine	Penn.	mine	l	skarn	Fe	Cu	20,44,98,117
4-171	Grace Mine	Penn.	mine	l	skarn	Fe Cu	Co Ag Au	6,107
4-172	Bylers mine	Penn.	mine	l	skarn	Fe		5,98
5-173	Wheatfield mine	Penn.	mine	l	skarn	Fe		20,44,98,117
5-174	Ruth mine	Penn.	mine	m	skarn	Fe		20,44,98,117
5-175	Doner mine	Penn.	mine	m	skarn	Fe		69,98,117
5-176	Mt. Pleasant	Penn.	prospect	n	skarn	Fe		98,117
5-177	Rexmont Reservoir	Penn.	prospect	n	skarn	Fe		98,117
5-179	Cornwall mine	Penn.	mine	l	skarn	Fe Cu	Au Ag Co	39,46,67,69,98,117
5-180	Hummelstown	Penn.	mine	m	skarn	Fe		98,117
5-185	Mt. Pleasant 2	Penn.	prospect	n	skarn	Fe		29,98,122
5-186	Mt. Pleasant 1	Penn.	prospect	n	skarn	Fe		29,98,122
5-187	Wellsville 2	Penn.	prospect	n	skarn	Fe		29,98,122
5-188	Wellsville 1	Penn.	prospect	n	skarn	Fe		29,98,122
5-190	Harman mine	Penn.	mine	n	skarn	Fe		29,98
5-191	Brenneman mine	Penn.	mine	n	skarn	Fe		29,98
5-192	Altland mine	Penn.	mine	n	skarn	Fe		29,98
5-193	Comfort mine	Penn.	mine	n	skarn	Fe		29,98
5-194	Cadwalader mine	Penn.	mine	n	skarn	Fe		29,98
5-195	Marshall mine	Penn.	mine	n	skarn	Fe		29,98
5-196	Sluthower mine	Penn.	mine	n	skarn	Fe		29,98
5-197	Minebank School 1	Penn.	mine	m	skarn	Fe		29,98,117
5-198	Minebank School 2	Penn.	mine	m	skarn	Fe		29,98,117
5-199	Roler	Penn.	prospect	n	skarn	Fe		98,122
5-200	Smith prospect	Penn.	prospect	n	skarn	Fe		29,98
5-201	Grantham mines	Penn.	mine	m	skarn	Fe		20,29,98,117
5-202	Dillsburg N	Penn.	prospect	n	skarn	Fe		98,122
5-203	McCormick mine	Penn.	mine	l	skarn	Fe		20,29,49,61,83,98,117
5-204	Longnecker mine	Penn.	mine	l	skarn	Fe		20,29,49,61,83,98,117
5-205	King mine	Penn.	mine	m	skarn	Fe		20,29,49,61,83,98,117
5-206	Underwood mine	Penn.	mine	l	skarn	Fe		20,29,49,61,83,98,117

Table 1B, occurrences listed by deposit type, continued.

occurrence no.	name	state	occurrence type	production [b/]	deposit type	metal associations principal	accessory	References [c/]
I. METAL OCCURRENCES ASSOCIATED WITH IGNEOUS INTRUSIONS, Continued								
A. SKARN DEPOSITS, Continued								
5-207	Jauss mine	Penn.	mine	l	skarn	Fe		20,29,49,61,83,98,117
5-208	Altland mine	Penn.	mine	m	skarn	Fe		20,29,49,61,83,98,117
5-209	Smyser mine	Penn.	mine	m	skarn	Fe		20,29,49,61,83,98,117
5-210	Bell mine	Penn.	mine	l	skarn	Fe		20,29,49,61,83,98,117
5-211	Logan mine	Penn.	mine	m	skarn	Fe		20,29,49,61,83,98,117
5-212	Cox mine	Penn.	mine	m	skarn	Fe		20,29,49,61,83,98,117
5-213	Grove mine	Penn.	mine	m	skarn	Fe		20,29,49,61,83,98,117
5-214	Bender mine	Penn.	mine	n	skarn	Fe		29,68,98,117
5-215	Franklintown 1	Penn.	prospect	n	skarn	Fe		29,98,117
5-216	Franklintown 2	Penn.	prospect	n	skarn	Fe		29,98,117
5-217	Franklintown 3	Penn.	prospect	n	skarn	Fe		29,98,117
5-218	Franklintown 4	Penn.	prospect	n	skarn	Fe		29,98,117
5-219	Lichte mine	Penn.	mine	m	skarn	Fe		29,98
5-221	Center Mills 1	Penn.	prospect	n	skarn	Fe		98,119,120
5-222	Center Mills 2	Penn.	prospect	n	skarn	Fe		98,119,120
5-223	Idaville	Penn.	prospect	n	skarn	Fe		98,119
5-230	Cashtown 2	Penn.	prospect	n	skarn	Fe		84,98,120
5-231	Cashtown 1	Penn.	prospect	n	skarn	Fe		84,98,120
5-232	Orrtana	Penn.	occurrence	n	skarn	Fe		98,119
5-233	Carr Hill	Penn.	prospect	n	skarn	Fe		98,119,120
5-235	McNair Farm	Penn.	prospect	n	skarn	Fe		98,119
6-264	Culpeper prospect	Va.	occurrence	n	hornfels/skarn	Cu	Fe	75,93
B. HORNFELS DEPOSITS								
2-055	copper prospect	Conn.	prospect	n	hornfels	Cu		123
2-068	copper prospect	Conn.	prospect	n	hornfels	Cu	Ba Ag	33
2-070	copper prospect	Conn.	prospect	n	hornfels ?/replacement	Cu		32,33
3-085	Monmouth Junction	N. J.	prospect	n	hornfels/vein	Cu		76
3-088	Woosamonsa prospect	N. J.	prospect	n	hornfels/replacement	Cu		66,73b,136
4-089	New Hope	Penn.	occurrence	n	hornfels	Cu		98,131
4-091	Solebury	Penn.	mine	n	vein/hornfels	Cu		98,118,131,134
4-096	Lodi	Penn.	occurrence	n	hornfels	Cu		98,131
4-097	Tettemer's mine	Penn.	mine	n	hornfels	Cu		98,131
4-098	Uhlerstown	Penn.	occurrence	n	hornfels	Cu		98,131
4-099	Ferndale	Penn.	occurrence	n	hornfels	Cu		98,131
4-100	Bursonville	Penn.	occurrence	n	hornfels	Cu		98,131
4-109	Coopersburg	Penn.	prospect	n	hornfels	Cu		98
4-112	Sumneytown	Penn.	occurrence	n	hornfels	Cu		44,98
4-113	Kibblehouse quarry	Penn.	occurrence	n	hornfels	Cu	Co	112,116
4-114	Hendricks Station	Penn.	prospect	n	hornfels	Cu		44,98,131
4-115	Kober's mine	Penn.	mine	u	hornfels/fault zone ?	Cu	Pb	4,44,84,98,131
4-116	Karl's mine	Penn.	mine	u	vein/hornfels ?	Cu		4,44,84,98,131
4-117	Young's mine	Penn.	mine	n	hornfels	Cu	Au	4,44,84,98,131
4-118	Schwencksville	Penn.	prospect	n	hornfels ?	Cu		98
4-134	Brendlinger mine	Penn.	prospect	n	hornfels ?	Cu		84,98,131
4-137	Pennsylvania mine	Penn.	mine	n	hornfels	Cu		98,118,131
4-153	Snydersville	Penn.	occurrence	n	hornfels	Cu		27,44,98
4-168	S. of Reading	Penn.	occurrence	n	hornfels	Cu		44,98

Table 1B, occurrences listed by deposit type, continued.

occurrence no.	name	state	occurrence type	a/ production	deposit type	metal associations principal	accessory	References
I. METAL OCCURRENCES ASSOCIATED WITH IGNEOUS INTRUSIONS, Continued								
A. HORNFELS DEPOSITS, Continued								
5-178	Carper mine	Penn.	mine	m	hornfels/replacement	Fe		40,98,117
5-184	Reeser's Summit	Penn.	occurrence	n	hornfels	Cu		98,111
5-189	Rossville roadcut	Penn.	occurrence	n	hornfels	Cu		114,115
5-220	Clapper farm	Penn.	occurrence	n	hornfels	Cu Au	Ag	114
5-224	Heidlersburg	Penn.	occurrence	n	hornfels	Cu		98,120
5-225	Stone Jug mine	Penn.	mine	n	hornfels/replacement	Cu	Au Ag Mo	113
5-226	Hunterstown	Penn.	prospect	n	hornfels	Cu	Au	58,79,98
5-227	Gettysburg	Penn.	occurrence	n	hornfels	Cu		98,119
5-229	Teeter's Quarry	Penn.	occurrence	n	hornfels	Cu		68,98
5-234	Fairfield	Penn.	prospect	n	hornfels	Cu Fe		30,98,119,120
6-242	Goose Creek	Va.	prospect	n	hornfels/replacement	Cu		11,36,75,93,125,130
6-245	Theodora	Va.	mine	n	hornfels	Cu		11,36,60,75
6-246	Spencer Farm	Va.	prospect	n	hornfels/replacement	Cu		11,75
6-247	Chantilly prospect	Va.	prospect	n	hornfels/replacement	Cu		11,75
6-248	Cub Run Copper	Va.	occurrence	n	hornfels/replacement	Cu		24
6-259	Bealeton mine	Va.	mine	n	hornfels/replacement	Cu		75,93
6-262	Mountain Run	Va.	occurrence	n	hornfels/replacement	Cu	Fe U	35
6-265	Batna	Va.	prospect	n	hornfels	Cu		36,75,93,130
C. DIABASE-HOSTED VEIN AND SEGREGATION DEPOSITS								
4-105	Diehl's Mine	Penn.	occurrence	n	diabase-host/vein	Au	Cu	4,44,98,131
4-130	Congo 3	Penn.	prospect	n	diabase-host/vein	Cu		98,117,131
4-132	Congo 2	Penn.	prospect	n	diabase-host/vein	Cu		98,117,131
4-133	Congo 1	Penn.	prospect	n	diabase-host/vein	Cu		98,117,131
4-155	Gickerville	Penn.	occurrence	n	diabase-host/vein	As Co		44,98
4-156	Dyer Quarry	Penn.	occurrence	n	diabase-host/vein	Cu		112,114
6-250	Fairfax Quarry	Va.	occurrence	n	diabase-host/vein	Cu		19,75
II. METAL OCCURRENCES ASSOCIATED WITH THE MIGRATION OF BASIN BRINES								
A. SEDIMENT-HOSTED STRATABOUND REPLACEMENT AND DISSEMENATED DEPOSITS								
2-037	K & F Suffield	Conn.	occurrence	u	stratabound/replacement	Cu		47
2-038	Simsbury mine	Conn.	mine	n	stratabound/replacement	Cu		102,104
2-039	Newgate Prison	Conn.	mine	m	stratabound/replacement	Cu	Ag U	47,88,89,101,128,130
2-040	Higley Copper	Conn.	mine	m	stratabound/replacement	Cu		47,101,130
2-046	Cook's Gap	Conn.	occurrence	n	stratabound/replacement	Zn Cu		47
2-071	silver prospect	Conn.	prospect	n	sediment-host	Ag		62
2-072	Totowa mine	N. J.	mine	u	stratabound/vein	Cu		136
3-073	Glen Ridge Mine	N. J.	mine	m	stratabound/replacement	Cu		73,84,136
3-074	Wigwam Brook	N. J.	mine	u	stratabound/replacement	Cu		136
3-075	Dod Mine	N. J.	mine	m	stratabound/replacement	Cu		136
3-076	Schuyler Mine	N. J.	mine	m	stratabound/replacement	Cu	Ag	16,70,84,136
3-078	Hoffman	N. J.	mine	n	stratabound/replacement	Cu		73,84,136
3-079	Stony Brook	N. J.	mine	m	stratabound/replacement	Cu		136
3-080	Bridgewater	N. J.	mine	u	stratabound/replacement	Cu		18,52,84,129,136
3-081	Chimney Rock	N. J.	mine	n	stratabound/replacement	Cu		73,136
3-083	New Brunswick	N. J.	mine	n	stratabound/replacement	Cu	Ag	136
3-084	Flemington	N. J.	mine	n	stratabound/replacement	Cu		73,84,136
3-086	Griggstown	N. J.	mine	n	stratabound/replacement	Cu	Ag Au	73,136
4-101	Keller's Church	Penn.	prospect	n	sediment-host	Cu		98,131
4-102	Hagersville	Penn.	occurrence	n	sediment-host	Cu		98,131

Table 1B, occurrences listed by deposit type, continued.

occurrence no.	name	state	occurrence type	production [b/]	deposit type	metal associations principal	accessory	References [c/]
II. METAL OCCURRENCES ASSOCIATED WITH THE MIGRATION OF BASIN BRINES, Continued								
A. SEDIMENT-HOSTED STRATABOUND REPLACEMENT AND DISSEMENATED DEPOSITS, Continued								
4-106	Sellersville	Penn.	occurrence	n	sediment-host	Cu		27,44,98
4-107	Drakes Crossrd.	Penn.	occurrence	n	sediment-host	Cu		44,98,131
4-108	Leithsville mine	Penn.	mine	u	sediment-host ?	Cu		27,98
4-110	Pennsburg	Penn.	occurrence	n	sediment-host	Cu		44,98,131
4-111	Red Hill	Penn.	occurrence	n	sediment-host	Cu		98,131
4-119	Lederachsville	Penn.	occurrence	n	sediment-host	Cu		44,98,131
4-120	Graters Ford	Penn.	occurrence	n	sediment-host	Cu		44,98,131
4-121	Collegeville	Penn.	occurrence	n	sediment-host	Cu		44,98,131
4-135	Layfield	Penn.	occurrence	n	sediment-host	Cu		44,98,131
4-136	Gilbertville	Penn.	occurrence	n	sediment-host	Cu		44,98,131
4-138	Saratoga	Penn.	prospect	n	sediment-host	Cu		5,98
4-157	Glasgow	Penn.	occurrence	n	sediment-host	Cu		44,98,131
4-158	Bleims mine	Penn.	prospect	n	sediment-host	Cu		44,98
5-181	Glenwood Station	Penn.	occurrence	n	sediment-host	Cu		9,44,98
5-182	Lecron's	Penn.	mine	n	sediment-host	Cu		31,98,122
5-228	Bonneauville	Penn.	occurrence	n	sediment-host	Cu		30,98
6-240	Sugarland	Md.	mine	n	stratabound/replacement	Cu		11,34,36,71
6-243	Sugarland Run	Va.	prospect	n	stratabound/replacement	Cu Ag		11
6-244	Sterling	Va.	occurrence	n	stratabound/replacement	Cu		11
6-249	Chantilly	Va.	occurrence	n	stratabound/replacement	Cu		11,17
6-253	Brentsville	Va.	prospect	n	sediment-host	Cu		11,93
6-255	Calverton	Va.	occurrence	n	stratabound/replacement	Zn		45
6-263	Stevensburg	Va.	occurrence	n	stratabound/replacement	Zn Cu		11
6-266	Somerset mine	Va.	mine	n	stratabound/replacement	Cu		75,93,97,130
B. VEIN DEPOSITS								
0-001	E. Surry Mtn. mine	N. H.	mine	u	vein	Pb	Cu	80
0-002	Will Wise mine	N. H.	mine	n	vein	F	Ba Pb	3
0-003	Stoddard mine 1	N. H.	mine	m	vein	F	Ba Pb	3
0-004	Stoddard mine 2	N. H.	mine	m	vein	F	Ba Pb	3
0-005	Springer mine	N. H.	mine	m	vein	F	Ba Pb Cu	3
0-006	fluorite prospect	N. H.	prospect	n	vein	F		3
0-007	Pierce mine	N. H.	mine	m	vein	F	Ba Pb	3
0-008	Streeter Hill	N. H.	occurrence	n	vein	F	Pb	3
0-009	galena occurrence	N. H.	occurrence	n	vein	Pb		80
0-010	Winchester mine	N. H.	mine	n	vein	Pb	Ag	80
1-012	Turners Falls 1	Mass.	occurrence	n	vein	Cu	Ba	25,43,55,57,132
1-013	Turners Falls 2	Mass.	occurrence	n	vein	Cu	Ba	25,43,55,57,132
1-014	Deerfield	Mass.	occurrence	u	vein	Pb	Ba	25,55,57
1-015	Unnamed Pb-Ba	Mass.	occurrence	u	vein	Pb	Ba	25,55,57
1-016	Mt. Esther	Mass.	occurrence	u	vein	Pb	Ba	43,55,57
1-017	Leverett	Mass.	mine	m	vein	Pb	Ba Cu	25,43,53,57,64,85
1-018	Unnamed Pb-Ba 4	Mass.	occurrence	n	vein	Pb	Ba Cu	25
1-019	Whately-Wm. 1	Mass.	mine	u	vein	Pb		25,43,55,57,133
1-020	Whately-Wm. 2	Mass.	mine	u	vein	Pb		25,43,55,57,133
1-021	Unnamed Pb-Ba 1	Mass.	occurrence	n	vein	Pb	Ba Cu	25
1-022	Unnamed Pb-Ba 3	Mass.	occurrence	n	vein	Pb	Ba Cu	25
1-023	Unnamed Pb-Ba 2	Mass.	occurrence	n	vein	Pb	Ba Cu	25
1-024	Whately-Wm. 3	Mass.	mine	u	vein	Pb		25,43,55,57,133

Table 1B, occurrences listed by deposit type, continued.

occurrence no.	name	state	occurrence type	a/ production	deposit type	metal associations principal	accessory	References b/ c/
II. METAL OCCURRENCES ASSOCIATED WITH THE MIGRATION OF BASIN BRINES, Continued								
A. VEIN DEPOSITS, Continued								
1-025	Hatfield Lead	Mass.	mine	m	vein	Pb	Ba Cu	25,43,54,57,133
1-026	Unnamed Pb-Ba 2	Mass.	mine	m	vein	Pb	Ba	25,55,57
1-027	Unnamed Pb-Ba 1	Mass.	mine	m	vein	Pb	Ba	25,55,57
1-028	Manhan Lead 1	Mass.	mine	m	vein	Pb Ba	Ag Zn Cu	25,55
1-029	Manhan Lead 2	Mass.	mine	m	vein	Pb Ba	Ag Zn Cu	25,55
1-030	Manhan Lead 3	Mass.	mine	m	vein	Pb Ba	Ag Zn Cu	25,55
1-031	Manhan Lead 4	Mass.	mine	m	vein	Pb Ba	Ag Zn Cu	25,55
1-032	Manhan Lead 5	Mass.	mine	m	vein	Pb Ba	Ag Zn Cu	25,55
1-033	Southampton	Mass.	mine	n	vein	Pb Cu	Ag Zn Ba	43,55,57
1-034	New Mine vein	Mass.	mine	u	vein	Pb		56,81
1-035	Woodland Dell	Mass.	occurrence	n	fault zone/replacement	Cu		86
2-036	Somers sandpit	Conn.	occurrence	n	fault zone/replacement	Cu		86
2-041	Trinity College	Conn.	occurrence	n	vein	Cu	Ba	100
2-042	Bristol Copper	Conn.	mine	m	vein/replacement	Cu	Ag U	7,65,101,105
2-043	Farmington	Conn.	occurrence	n	vein	Zn		106
2-044	basalt quarry	Conn.	occurrence	n	vein		Ba	106
2-045	Plainfield quarry	Conn.	occurrence	n	vein		Cu Zn	106
2-047	Columbus Blvd.	Conn.	occurrence	n	vein	Zn Pb	Cu Ba	47
2-048	Ellis Street	Conn.	occurrence	n	vein/replacement	Cu	Ba	47
2-049	bitumen vein	Conn.	occurrence	n	vein			106
2-050	Mattabesset River	Conn.	mine	n	vein	Pb	Zn Ba	48,87,104
2-051	Berlin Moores Mill	Conn.	mine	n	vein	Ba		48,87,104
2-052	limestone quarry	Conn.	occurrence	n	vein		F	48
2-053	barite vein	Conn.	occurrence	n	vein		Ba	72
2-054	Middletown Lead	Conn.	mine	n	vein	Pb	Ag	92
2-056	barite vein	Conn.	occurrence	n	vein	Ba		33b
2-057	New Haven mine	Conn.	mine	n	vein	Ba	Cu Ag Sr	32,33b
2-058	Cheshire Mine 3	Conn.	mine	u	vein/replacement	Ba		32
2-059	Cheshire Mine 2	Conn.	mine	u	vein/replacement	Ba		32
2-060	copper prospect	Conn.	prospect	n	fault zone/replacement	Cu		33b
2-061	Booth & Hinman	Conn.	mine	n	vein	Ba		32
2-062	Cheshire Mine 1	Conn.	mine	u	vein/replacement	Ba		32
2-063	copper mine	Conn.	mine	u	fault zone/replacement	Cu		48
2-064	Jinny Hill	Conn.	mine	l	vein	Ba	Cu Ag	32,33
2-065	Cross Rock	Conn.	mine	n	vein/replacement	Cu Ba		33
2-066	Gaylord	Conn.	prospect	n	vein/replacement	Cu	Ba Ag	32,33,104
2-067	Tallman's Mine	Conn.	mine	m	vein/replacement	Cu	Ba Ag	33,89,104
2-069	Copper Valley	Conn.	prospect	n	vein/replacement	Cu	Ag	32,33
3-077	Laurel Hill	N. J.	occurrence	n	vein/replacement	Fe		90
3-082	Menlo Park Mine	N. J.	mine	n	vein/fault zone	Cu		73,84,136
3-087	Hopewell Barite	N. J.	mine	m	vein	Ba		15,21
4-090	Ingham Spring	Penn.	prospect	n	vein	Cu Ba		98,131,134
4-092	Buckmanville	Penn.	mine	n	fault zone/vein	Ba	Cu	98,118,131,134
4-093	Buckingham	Penn.	occurrence	n	vein	Ba		44,98
4-094	W. Buckmanville	Penn.	prospect	n	vein	Ba Cu		98,131
4-095	Bushington	Penn.	occurrence	n	vein	Ba		44,98
4-103	New Galena	Penn.	mine	l	vein/fault zone	Pb Zn	Ag Au Cu	22,28,98,110,111,134
4-104	Schuylkill Falls	Penn.	occurrence	n	vein	Pb	Zn	44,78,98

Table 1B, occurrences listed by deposit type, continued.

occurrence no.	name	state	occurrence type	production [b/]	deposit type	metal associations principal	accessory	References [c/]
II. METAL OCCURRENCES ASSOCIATED WITH THE MIGRATION OF BASIN BRINES, Continued								
A. VEIN DEPOSITS, Continued								
4-122	Arcola	Penn.	occurrence	n	vein	Cu		44,98
4-123	Shannonville	Penn.	prospect	n	vein	Cu		44,78,98
4-124	Perkiomen mine	Penn.	mine	m	vein	Pb Cu	Zn	22,98,111,135
4-125	Whim mine	Penn.	mine	m	vein/fault zone	Pb Cu	Zn Ag	22,98,111,135
4-126	Ecton mine	Penn.	mine	m	vein	Pb	Zn Ag	22,98,111,135
4-127	Wetherill mine	Penn.	mine	m	vein	Pb	Cu Zn	22,98,111,135
4-128	Port Kennedy	Penn.	prospect	n	vein	Cu		44,78,98
4-129	Jug Hollow mine	Penn.	mine	m	vein	Ba Zn	Cu Pb	44,77,96,111
4-131	Fegley mine	Penn.	mine	n	vein/replacement	Fe		44,51,98,117
4-139	Phoenix. Tunnel	Penn.	occurrence	n	vein	Zn		44,98
4-140	Morris Copper	Penn.	mine	n	vein	Cu		78,98
4-141	Charlestown mine	Penn.	mine	n	vein	Pb Ba	Zn Cu Ag	95,111,126
4-142	Wheatley Mine	Penn.	mine	m	vein	Pb Zn	Cu Ag Mo	12,50,59,95,108,111
4-143	Chester Co. mine	Penn.	mine	m	vein	Pb Zn	Cu Ag	5,38,77,91,111,126
4-144	Montgomery Co.	Penn.	mine	m	vein	Zn Pb	Cu Ag	78,91,96,98,111,126
4-145	SW Chester mine	Penn.	mine	m	vein	Pb Zn	Cu Ag	5,38,77,91,111,126
4-146	Brookdale mine	Penn.	mine	m	vein	Zn Pb	Cu Ag	12,50,59,96,108,111
4-147	Phoenix mine	Penn.	mine	m	vein	Zn Pb	Ag Cu	12,50,59,96,108,111
4-148	Pethericks Penn	Penn.	prospect	n	vein	Pb		78,98
4-149	Pennypacker mine	Penn.	mine	n	vein	Pb	Cu	5,96,111
5-183	Safe Harbor	Penn.	occurrence	n	vein	Zn Ba		8,98
6-236	Boyds barite	Md.	occurrence	n	vein	Ba		94
6-252	Manassas	Va.	occurrence	n	vein	Ba		75,93
6-254	St. Stephens	Va.	mine	m	vein	Ba		11,23,36,71,75,93
6-256	Cedar Run	Va.	mine	m	vein/fault zone	Ba		11,23,36,71,75
6-257	Botts barite	Va.	occurrence	n	vein	Ba		23,75
6-258	Elk Run mine	Va.	prospect	n	fault zone/vein	Cu		74,75
6-260	Gear Barite	Va.	prospect	n	vein	Ba		23,36,75
6-261	Kemper	Va.	prospect	n	vein	Ba		23,36,71,75
7-267	Albemarle mine	Va.	mine	u	vein	Zn Pb	Ag	42,82,127
7-268	Scottsville barite	Va.	occurrence	n	vein	Ba		124
7-269	Dolan Property	Va.	occurrence	n	vein/fault zone	Cu		26,75
9-272	Clegg copper mine	N. C.	mine	n	vein	Cu		14
9-273	Tennessee Copper	N. C.	prospect	n	vein/replacement	Cu		14
9-274	Harrisville barite	N. C.	occurrence	n	vein	Ba		13
III. METAL OCCURRENCES ASSOCIATED WITH BASIN SEDIMENTATION								
A. PLACER DEPOSITS								
6-237	Dawsonville 1	Md.	occurrence	n	placer	Au		11
6-238	Dawsonville 2	Md.	occurrence	n	placer	Au		11
6-239	Seneca Creek	Md.	occurrence	n	placer	Hg		11
6-241	Waterford gold	Va.	occurrence	n	placer	Au		79
6-251	Bull Run	Va.	occurrence	n	placer	Au		11
8-270	Bell Branch gold	N. C.	occurrence	n	placer	Au		79
9-271	Whomble prospect	N. C.	prospect	n	placer	Au		10
9-275	Mangum gold 2	N. C.	occurrence	n	placer	Au		79
9-276	Mangum gold 1	N. C.	occurrence	n	placer	Au		79

Table 1B, occurrences listed by deposit type, continued.

a/ The area of the occurrence location is indicated by the first number of the occurrence number category. 0 indicates areas north of the Hartford basin in New Hampshire. 1 indicates the Hartford basin and vicinity, Massachusetts. 2 indicates the Hartford basin and vicinity, Connecticut. 3 indicates the Newark basin, New Jersey. 4 indicates the Newark basin and vicinity, Pennsylvania. 5 indicates the Gettysburg basin and vicinity, Pennsylvania. 6 indicates the Culpeper basin, Maryland and Virginia. 7 indicates other in Virginia. 8 indicates the Davie County basin area, North Carolina. 9 indicates the Deep River basin area, North Carolina.

b/ Ore production history and size of occurrence. An l, m, n, or u indicates ore production or reserves greater than 100,000 tons, between 1000 and 100,000 tons, less than 1000 tons, or unknown, respectively.

c/ Number of reference citation, as listed in Table 1, section E.

Table 1. Inventory of metal mines and occurrences associated with the early Mesozoic basins of the Eastern U. S.
Section C. Occurrences listed by type of occurrence and size.

occurrence no. [a/]	name	state	occurrence type	production [b/]	deposit type	metal associations: principal	accessory	References [c/]
I. MINE								
A. ORE PRODUCTION GREATER THAN 100,000 TONS								
2-064	Jinny Hill	Conn.	mine	l	vein	Ba	Cu Ag	32,33
4-103	New Galena	Penn.	mine	l	vein/fault zone	Pb Zn	Ag Au Cu	22,28,98,110,111,134
4-160	French Creek mines	Penn.	mine	l	skarn	Fe Cu	Zn Co	5,44,68,98,109
4-163	Jones-Kinney mines	Penn.	mine	l	skarn	Fe	Cu	44,63,96,98,117,121
4-166	Warwick mine	Penn.	mine	l	skarn	Fe		5,44,96,98,117
4-170	Fritz Island mine	Penn.	mine	l	skarn	Fe	Cu	20,44,98,117
4-171	Grace Mine	Penn.	mine	l	skarn	Fe Cu	Co Ag Au	6,107
4-172	Bylers mine	Penn.	mine	l	skarn	Fe		5,98
5-173	Wheatfield mine	Penn.	mine	l	skarn	Fe		20,44,98,117
5-179	Cornwall mine	Penn.	mine	l	skarn	Fe Cu	Au Ag Co	39,46,67,69,98,117
5-203	McCormick mine	Penn.	mine	l	skarn	Fe		20,29,49,61,83,98,117
5-204	Longnecker mine	Penn.	mine	l	skarn	Fe		20,29,49,61,83,98,117
5-206	Underwood mine	Penn.	mine	l	skarn	Fe		20,29,49,61,83,98,117
5-207	Jauss mine	Penn.	mine	l	skarn	Fe		20,29,49,61,83,98,117
5-210	Bell mine	Penn.	mine	l	skarn	Fe		20,29,49,61,83,98,117
B. ORE PRODUCTION GREATER THAN 1000 AND LESS THAN 100,000 TONS								
0-003	Stoddard mine 1	N. H.	mine	m	vein	F	Ba Pb	3
0-004	Stoddard mine 2	N. H.	mine	m	vein	F	Ba Pb	3
0-005	Springer mine	N. H.	mine	m	vein	F	Ba Pb Cu	3
0-007	Pierce mine	N. H.	mine	m	vein	F	Ba Pb	3
1-017	Leverett	Mass.	mine	m	vein	Pb	Ba Cu	25,43,53,57,64,85
1-025	Hatfield Lead	Mass.	mine	m	vein	Pb	Ba Cu	25,43,54,57,133
1-026	Unnamed Pb-Ba 2	Mass.	mine	m	vein	Pb	Ba	25,55,57
1-027	Unnamed Pb-Ba 1	Mass.	mine	m	vein	Pb	Ba	25,55,57
1-028	Manhan Lead 1	Mass.	mine	m	vein	Pb Ba	Ag Zn Cu	25,55
1-029	Manhan Lead 2	Mass.	mine	m	vein	Pb Ba	Ag Zn Cu	25,55
1-030	Manhan Lead 3	Mass.	mine	m	vein	Pb Ba	Ag Zn Cu	25,55
1-031	Manhan Lead 4	Mass.	mine	m	vein	Pb Ba	Ag Zn Cu	25,55
1-032	Manhan Lead 5	Mass.	mine	m	vein	Pb Ba	Ag Zn Cu	25,55
2-039	Newgate Prison	Conn.	mine	m	stratabound/replacement	Cu	Ag U	47,88,89,101,128,130
2-040	Higley Copper	Conn.	mine	m	stratabound/replacement	Cu		47,101,130
2-042	Bristol Copper	Conn.	mine	m	vein/replacement	Cu	Ag U	7,65,101,105
2-067	Tallman's Mine	Conn.	mine	m	vein/replacement	Cu	Ba Ag	33,89,104
3-073	Glen Ridge Mine	N. J.	mine	m	stratabound/replacement	Cu		73,84,136
3-075	Dod Mine	N. J.	mine	m	stratabound/replacement	Cu		136
3-076	Schuyler Mine	N. J.	mine	m	stratabound/replacement	Cu	Ag	16,70,84,136
3-079	Stony Brook	N. J.	mine	m	stratabound/replacement	Cu		136
3-087	Hopewell Barite	N. J.	mine	m	vein	Ba		15,21
4-124	Perkiomen mine	Penn.	mine	m	vein	Pb Cu	Zn	22,98,111,135
4-125	Whim mine	Penn.	mine	m	vein/fault zone	Pb Cu	Zn Ag	22,98,111,135
4-126	Ecton mine	Penn.	mine	m	vein	Pb	Zn Ag	22,98,111,135
4-127	Wetherill mine	Penn.	mine	m	vein	Pb	Cu Zn	22,98,111,135
4-129	Jug Hollow mine	Penn.	mine	m	vein	Ba Zn	Cu Pb	44,77,96,111
4-142	Wheatley Mine	Penn.	mine	m	vein	Pb Zn	Cu Ag Mo	12,50,59,95,108,111
4-143	Chester Co. mine	Penn.	mine	m	vein	Pb Zn	Cu Ag	5,38,77,91,111,126

Table 1C, occurrences listed by type of occurrence and size, continued.

occurrence no.	name	state	occurrence type [a/]	production [b/]	deposit type	metal associations: principal	accessory	References [c/]
I. MINE, Continued								
B. ORE PRODUCTION GREATER THAN 1000 AND LESS THAN 100,000 TONS, Continued								
4-144	Montgomery Co.	Penn.	mine	m	vein	Zn Pb	Cu Ag	78,91,96,98,111,126
4-145	SW Chester mine	Penn.	mine	m	vein	Pb Zn	Cu Ag	5,38,77,91,111,126
4-146	Brookdale mine	Penn.	mine	m	vein	Zn Pb	Cu Ag	12,50,59,96,108,111
4-147	Phoenix mine	Penn.	mine	m	vein	Zn Pb	Ag Cu	12,50,59,96,108,111
4-152	Brower mine	Penn.	mine	m	skarn	Fe		98,117
4-165	Leighton mine	Penn.	mine	m	skarn/replacement	Fe		5,96,98
4-169	Raudenbush mine	Penn.	mine	m	skarn	Fe		20,98,117
5-174	Ruth mine	Penn.	mine	m	skarn	Fe		20,44,98,117
5-175	Doner mine	Penn.	mine	m	skarn	Fe		69,98,117
5-178	Carper mine	Penn.	mine	m	hornfels/replacement	Fe		40,98,117
5-180	Hummelstown	Penn.	mine	m	skarn	Fe		98,117
5-197	Minebank School 1	Penn.	mine	m	skarn	Fe		29,98,117
5-198	Minebank School 2	Penn.	mine	m	skarn	Fe		29,98,117
5-201	Grantham mines	Penn.	mine	m	skarn	Fe		20,29,98,117
5-205	King mine	Penn.	mine	m	skarn	Fe		20,29,49,61,83,98,117
5-208	Altland mine	Penn.	mine	m	skarn	Fe		20,29,49,61,83,98,117
5-209	Smyser mine	Penn.	mine	m	skarn	Fe		20,29,49,61,83,98,117
5-211	Logan mine	Penn.	mine	m	skarn	Fe		20,29,49,61,83,98,117
5-212	Cox mine	Penn.	mine	m	skarn	Fe		20,29,49,61,83,98,117
5-213	Grove mine	Penn.	mine	m	skarn	Fe		20,29,49,61,83,98,117
5-219	Lichte mine	Penn.	mine	m	skarn	Fe		29,98
6-254	St. Stephens	Va.	mine	m	vein	Ba		11,23,36,71,75,93
6-256	Cedar Run	Va.	mine	m	vein/fault zone	Ba		11,23,36,71,75
C. ORE PRODUCTION KNOWN OR ASSUMED TO BE LESS THAN 1000 TONS								
0-001	E. Surry Mtn. mine	N. H.	mine	u	vein	Pb	Cu	80
0-002	Will Wise mine	N. H.	mine	n	vein	F	Ba Pb	3
0-010	Winchester mine	N. H.	mine	n	vein	Pb	Ag	80
1-019	Whately-Wm. 1	Mass.	mine	u	vein	Pb		25,43,55,57,133
1-020	Whately-Wm. 2	Mass.	mine	u	vein	Pb		25,43,55,57,133
1-024	Whately-Wm. 3	Mass.	mine	u	vein	Pb		25,43,55,57,133
1-033	Southampton	Mass.	mine	n	vein	Pb Cu	Ag Zn Ba	43,55,57
1-034	New Mine vein	Mass.	mine	u	vein	Pb		56,81
2-038	Simsbury mine	Conn.	mine	n	stratabound/replacement	Cu		102,104
2-050	Mattabesset River	Conn.	mine	n	vein	Pb	Zn Ba	48,87,104
2-051	Berlin Moores Mill	Conn.	mine	n	vein	Ba		48,87,104
2-054	Middletown Lead	Conn.	mine	n	vein	Pb	Ag	92
2-057	New Haven mine	Conn.	mine	n	vein	Ba	Cu Ag Sr	32,33b
2-058	Cheshire Mine 3	Conn.	mine	u	vein/replacement	Ba		32
2-059	Cheshire Mine 2	Conn.	mine	u	vein/replacement	Ba		32
2-061	Booth & Hinman	Conn.	mine	n	vein	Ba		32
2-062	Cheshire Mine 1	Conn.	mine	u	vein/replacement	Ba		32
2-063	copper mine	Conn.	mine	u	fault zone/replacement	Cu		48
2-065	Cross Rock	Conn.	mine	n	vein/replacement	Cu Ba		33
2-072	Totowa mine	N. J.	mine	u	stratabound/vein	Cu		136
3-074	Wigwam Brook	N. J.	mine	u	stratabound/replacement	Cu		136
3-078	Hoffman	N. J.	mine	n	stratabound/replacement	Cu		73,84,136
3-080	Bridgewater	N. J.	mine	u	stratabound/replacement	Cu		18,52,84,129,136
3-081	Chimney Rock	N. J.	mine	n	stratabound/replacement	Cu		73,136

Table 1C, occurrences listed by type of occurrence and size, continued.

occurrence no.	name	state	occurrence type [a/]	production [b/]	deposit type	metal associations principal	accessory	References [c/]
I. MINE, Continued								
C. ORE PRODUCTION KNOWN OR ASSUMED TO BE LESS THAN 1000 TONS, Continued								
3-082	Menlo Park Mine	N. J.	mine	n	vein/fault zone	Cu		73,84,136
3-083	New Brunswick	N. J.	mine	n	stratabound/replacement	Cu	Ag	136
3-084	Flemington	N. J.	mine	n	stratabound/replacement	Cu		73,84,136
3-086	Griggstown	N. J.	mine	n	stratabound/replacement	Cu	Ag Au	73,136
4-091	Solebury	Penn.	mine	n	vein/hornfels	Cu		98,118,131,134
4-092	Buckmanville	Penn.	mine	n	fault zone/vein	Ba	Cu	98,118,131,134
4-097	Tettemer's mine	Penn.	mine	n	hornfels	Cu		98,131
4-108	Leithsville mine	Penn.	mine	u	sediment-host ?	Cu		27,98
4-115	Kober's mine	Penn.	mine	u	hornfels/fault zone ?	Cu	Pb	4,44,84,98,131
4-116	Karl's mine	Penn.	mine	u	vein/hornfels ?	Cu		4,44,84,98,131
4-117	Young's mine	Penn.	mine	n	hornfels	Cu	Au	4,44,84,98,131
4-131	Fegley mine	Penn.	mine	n	vein/replacement	Fe		44,51,98,117
4-137	Pennsylvania mine	Penn.	mine	n	hornfels	Cu		98,118,131
4-140	Morris Copper	Penn.	mine	n	vein	Cu		78,98
4-141	Charlestown mine	Penn.	mine	n	vein	Pb Ba	Zn Cu Ag	95,111,126
4-149	Pennypacker mine	Penn.	mine	n	vein	Pb	Cu	5,96,111
4-150	Boyertown mine	Penn.	mine	n	skarn	Fe		20,44,51,98,117
4-154	Esterly mine	Penn.	mine	u	skarn	Fe		20,98,117
4-159	Unnamed Fe mine	Penn.	mine	u	skarn	Fe		5,98
4-164	Hopewell mine	Penn.	mine	u	skarn	Fe		5,41,44,96,98,99,103
4-167	Steels mine	Penn.	mine	u	skarn/replacement	Fe		5,44,96,98
5-182	Lecron's	Penn.	mine	n	sediment-host	Cu		31,98,122
5-190	Harman mine	Penn.	mine	n	skarn	Fe		29,98
5-191	Brenneman mine	Penn.	mine	n	skarn	Fe		29,98
5-192	Altland mine	Penn.	mine	n	skarn	Fe		29,98
5-193	Comfort mine	Penn.	mine	n	skarn	Fe		29,98
5-194	Cadwalader mine	Penn.	mine	n	skarn	Fe		29,98
5-195	Marshall mine	Penn.	mine	n	skarn	Fe		29,98
5-196	Sluthower mine	Penn.	mine	n	skarn	Fe		29,98
5-214	Bender mine	Penn.	mine	n	skarn	Fe		29,68,98,117
5-225	Stone Jug mine	Penn.	mine	n	hornfels/replacement	Cu	Au Ag Mo	113
6-240	Sugarland	Md.	mine	n	stratabound/replacement	Cu		11,34,36,71
6-245	Theodora	Va.	mine	n	hornfels	Cu		11,36,60,75
6-259	Bealeton mine	Va.	mine	n	hornfels/replacement	Cu		75,93
6-266	Somerset mine	Va.	mine	n	stratabound/replacement	Cu		75,93,97,130
7-267	Albemarle mine	Va.	mine	u	vein	Zn Pb	Ag	42,82,127
9-272	Clegg copper mine	N. C.	mine	n	vein	Cu		14
II. PROSPECT								
0-006	fluorite prospect	N. H.	prospect	n	vein	F		3
2-055	copper prospect	Conn.	prospect	n	hornfels	Cu		123
2-060	copper prospect	Conn.	prospect	n	fault zone/replacement	Cu		33b
2-066	Gaylord	Conn.	prospect	n	vein/replacement	Cu	Ba Ag	32,33,104
2-068	copper prospect	Conn.	prospect	n	hornfels	Cu	Ba Ag	33
2-069	Copper Valley	Conn.	prospect	n	vein/replacement	Cu	Ag	32,33
2-070	copper prospect	Conn.	prospect	n	hornfels ?/replacement	Cu		32,33
2-071	silver prospect	Conn.	prospect	n	sediment-host	Ag		62
3-085	Monmouth Junction	N. J.	prospect	n	hornfels/vein	Cu		76
3-088	Woosamonsa prospect	N. J.	prospect	n	hornfels/replacement	Cu		66,73b,136

Table 1C, occurrences listed by type of occurrence and size, continued.

occurrence no.	name	state	occurrence type [a/]	production [b/]	deposit type	metal associations principal	accessory	References [c/]
II. PROSPECT, Continued								
4-090	Ingham Spring	Penn.	prospect	n	vein	Cu Ba		98,131,134
4-094	W. Buckmanville	Penn.	prospect	n	vein	Ba Cu		98,131
4-101	Keller's Church	Penn.	prospect	n	sediment-host	Cu		98,131
4-109	Coopersburg	Penn.	prospect	n	hornfels	Cu		98
4-114	Hendricks Station	Penn.	prospect	n	hornfels	Cu		44,98,131
4-118	Schwencksville	Penn.	prospect	n	hornfels ?	Cu		98
4-123	Shannonville	Penn.	prospect	n	vein	Cu		44,78,98
4-128	Port Kennedy	Penn.	prospect	n	vein	Cu		44,78,98
4-130	Congo 3	Penn.	prospect	n	diabase-host/vein	Cu		98,117,131
4-132	Congo 2	Penn.	prospect	n	diabase-host/vein	Cu		98,117,131
4-133	Congo 1	Penn.	prospect	n	diabase-host/vein	Cu		98,117,131
4-134	Brendlinger mine	Penn.	prospect	n	hornfels ?	Cu		84,98,131
4-138	Saratoga	Penn.	prospect	n	sediment-host	Cu		5,98
4-148	Pethericks Penn	Penn.	prospect	n	vein	Pb		78,98
4-151	Stonersville	Penn.	prospect	n	skarn	Fe		98,117
4-158	Bleims mine	Penn.	prospect	n	sediment-host	Cu		44,98
4-161	Knauertown	Penn.	prospect	n	skarn	Fe		5,98
4-162	Pine Swamp	Penn.	prospect	n	skarn/replacement	Fe		37,98,110
5-176	Mt. Pleasant	Penn.	prospect	n	skarn	Fe		98,117
5-177	Rexmont Reservoir	Penn.	prospect	n	skarn	Fe		98,117
5-185	Mt. Pleasant 2	Penn.	prospect	n	skarn	Fe		29,98,122
5-186	Mt. Pleasant 1	Penn.	prospect	n	skarn	Fe		29,98,122
5-187	Wellsville 2	Penn.	prospect	n	skarn	Fe		29,98,122
5-188	Wellsville 1	Penn.	prospect	n	skarn	Fe		29,98,122
5-199	Roler	Penn.	prospect	n	skarn	Fe		98,122
5-200	Smith prospect	Penn.	prospect	n	skarn	Fe		29,98
5-202	Dillsburg N	Penn.	prospect	n	skarn	Fe		98,122
5-215	Franklintown 1	Penn.	prospect	n	skarn	Fe		29,98,117
5-216	Franklintown 2	Penn.	prospect	n	skarn	Fe		29,98,117
5-217	Franklintown 3	Penn.	prospect	n	skarn	Fe		29,98,117
5-218	Franklintown 4	Penn.	prospect	n	skarn	Fe		29,98,117
5-221	Center Mills 1	Penn.	prospect	n	skarn	Fe		98,119,120
5-222	Center Mills 2	Penn.	prospect	n	skarn	Fe		98,119,120
5-223	Idaville	Penn.	prospect	n	skarn	Fe		98,119
5-226	Hunterstown	Penn.	prospect	n	hornfels	Cu	Au	58,79,98
5-230	Cashtown 2	Penn.	prospect	n	skarn	Fe		84,98,120
5-231	Cashtown 1	Penn.	prospect	n	skarn	Fe		84,98,120
5-233	Carr Hill	Penn.	prospect	n	skarn	Fe		98,119,120
5-234	Fairfield	Penn.	prospect	n	hornfels	Cu Fe		30,98,119,120
5-235	McNair Farm	Penn.	prospect	n	skarn	Fe		98,119
6-242	Goose Creek	Va.	prospect	n	hornfels/replacement	Cu		11,36,75,93,125,130
6-243	Sugarland Run	Va.	prospect	n	stratabound/replacement	Cu Ag		11
6-246	Spencer Farm	Va.	prospect	n	hornfels/replacement	Cu		11,75
6-247	Chantilly prospect	Va.	prospect	n	hornfels/replacement	Cu		11,75
6-253	Brentsville	Va.	prospect	n	sediment-host	Cu		11,93
6-258	Elk Run mine	Va.	prospect	n	fault zone/vein	Cu		74,75
6-260	Gear Barite	Va.	prospect	n	vein	Ba		23,36,75
6-261	Kemper	Va.	prospect	n	vein	Ba		23,36,71,75
6-265	Batna	Va.	prospect	n	hornfels	Cu		36,75,93,130

Table 1C, occurrences listed by type of occurrence and size, continued.

occurrence no.	name	state	occurrence type [a/]	production [b/]	deposit type	metal associations principal	accessory	References [c/]
II. PROSPECT, Continued								
9-271	Whomble prospect	N. C.	prospect	n	placer	Au		10
9-273	Tennessee Copper	N. C.	prospect	n	vein/replacement	Cu		14
III. MINERAL OCCURRENCE								
0-008	Streeter Hill	N. H.	occurrence	n	vein	F	Pb	3
0-009	galena occurrence	N. H.	occurrence	n	vein	Pb		80
1-011	Bernardston	Mass.	occurrence	n	skarn	Fe		1,2,25b
1-012	Turners Falls 1	Mass.	occurrence	n	vein	Cu	Ba	25,43,55,57,132
1-013	Turners Falls 2	Mass.	occurrence	n	vein	Cu	Ba	25,43,55,57,132
1-014	Deerfield	Mass.	occurrence	u	vein	Pb	Ba	25,55,57
1-015	Unnamed Pb-Ba	Mass.	occurrence	u	vein	Pb	Ba	25,55,57
1-016	Mt. Esther	Mass.	occurrence	u	vein	Pb	Ba	43,55,57
1-018	Unnamed Pb-Ba 4	Mass.	occurrence	n	vein	Pb	Ba Cu	25
1-021	Unnamed Pb-Ba 1	Mass.	occurrence	n	vein	Pb	Ba Cu	25
1-022	Unnamed Pb-Ba 3	Mass.	occurrence	n	vein	Pb	Ba Cu	25
1-023	Unnamed Pb-Ba 2	Mass.	occurrence	n	vein	Pb	Ba Cu	25
1-035	Woodland Dell	Mass.	occurrence	n	fault zone/replacement	Cu		86
2-036	Somers sandpit	Conn.	occurrence	n	fault zone/replacement	Cu		86
2-037	K & F Suffield	Conn.	occurrence	u	stratabound/replacement	Cu		47
2-041	Trinity College	Conn.	occurrence	n	vein	Cu	Ba	100
2-043	Farmington	Conn.	occurrence	n	vein	Zn		106
2-044	basalt quarry	Conn.	occurrence	n	vein		Ba	106
2-045	Plainfield quarry	Conn.	occurrence	n	vein		Cu Zn	106
2-046	Cook's Gap	Conn.	occurrence	n	stratabound/replacement	Zn Cu		47
2-047	Columbus Blvd.	Conn.	occurrence	n	vein	Zn Pb	Cu Ba	47
2-048	Ellis Street	Conn.	occurrence	n	vein/replacement	Cu	Ba	47
2-049	bitumen vein	Conn.	occurrence	n	vein			106
2-052	limestone quarry	Conn.	occurrence	n	vein		F	48
2-053	barite vein	Conn.	occurrence	n	vein		Ba	72
2-056	barite vein	Conn.	occurrence	n	vein	Ba		33b
3-077	Laurel Hill	N. J.	occurrence	n	vein/replacement	Fe		90
4-089	New Hope	Penn.	occurrence	n	hornfels	Cu		98,131
4-093	Buckingham	Penn.	occurrence	n	vein	Ba		44,98
4-095	Bushington	Penn.	occurrence	n	vein	Ba		44,98
4-096	Lodi	Penn.	occurrence	n	hornfels	Cu		98,131
4-098	Uhlerstown	Penn.	occurrence	n	hornfels	Cu		98,131
4-099	Ferndale	Penn.	occurrence	n	hornfels	Cu		98,131
4-100	Bursonville	Penn.	occurrence	n	hornfels	Cu		98,131
4-102	Hagersville	Penn.	occurrence	n	sediment-host	Cu		98,131
4-104	Schuylkill Falls	Penn.	occurrence	n	vein	Pb	Zn	44,78,98
4-105	Diehl's Mine	Penn.	occurrence	n	diabase-host/vein	Au	Cu	4,44,98,131
4-106	Sellersville	Penn.	occurrence	n	sediment-host	Cu		27,44,98
4-107	Drakes Crossrd.	Penn.	occurrence	n	sediment-host	Cu		44,98,131
4-110	Pennsburg	Penn.	occurrence	n	sediment-host	Cu		44,98,131
4-111	Red Hill	Penn.	occurrence	n	sediment-host	Cu		98,131
4-112	Sumneytown	Penn.	occurrence	n	hornfels	Cu		44,98
4-113	Kibblehouse quarry	Penn.	occurrence	n	hornfels	Cu	Co	112,116
4-119	Lederachsville	Penn.	occurrence	n	sediment-host	Cu		44,98,131
4-120	Graters Ford	Penn.	occurrence	n	sediment-host	Cu		44,98,131
4-121	Collegeville	Penn.	occurrence	n	sediment-host	Cu		44,98,131

Table 1C, occurrences listed by type of occurrence and size, continued.

occurrence no.	name	state	occurrence type [a/]	production [b/]	deposit type	metal associations principal	accessory	References [c/]
III. MINERAL OCCURRENCE, Continued								
4-122	Arcola	Penn.	occurrence	n	vein	Cu		44,98
4-135	Layfield	Penn.	occurrence	n	sediment-host	Cu		44,98,131
4-136	Gilbertville	Penn.	occurrence	n	sediment-host	Cu		44,98,131
4-139	Phoenix. Tunnel	Penn.	occurrence	n	vein	Zn		44,98
4-153	Snydersville	Penn.	occurrence	n	hornfels	Cu		27,44,98
4-155	Gickerville	Penn.	occurrence	n	diabase-host/vein	As Co		44,98
4-156	Dyer Quarry	Penn.	occurrence	n	diabase-host/vein	Cu		112,114
4-157	Glasgow	Penn.	occurrence	n	sediment-host	Cu		44,98,131
4-168	S. of Reading	Penn.	occurrence	n	hornfels	Cu		44,98
5-181	Glenwood Station	Penn.	occurrence	n	sediment-host	Cu		9,44,98
5-183	Safe Harbor	Penn.	occurrence	n	vein	Zn Ba		8,98
5-184	Reeser's Summit	Penn.	occurrence	n	hornfels	Cu		98,111
5-189	Rossville roadcut	Penn.	occurrence	n	hornfels	Cu		114,115
5-220	Clapper farm	Penn.	occurrence	n	hornfels	Cu Au	Ag	114
5-224	Heidlersburg	Penn.	occurrence	n	hornfels	Cu		98,120
5-227	Gettysburg	Penn.	occurrence	n	hornfels	Cu		98,119
5-228	Bonneauville	Penn.	occurrence	n	sediment-host	Cu		30,98
5-229	Teeter's Quarry	Penn.	occurrence	n	hornfels	Cu		68,98
5-232	Orrtana	Penn.	occurrence	n	skarn	Fe		98,119
6-236	Boyds barite	Md.	occurrence	n	vein	Ba		94
6-237	Dawsonville 1	Md.	occurrence	n	placer	Au		11
6-238	Dawsonville 2	Md.	occurrence	n	placer	Au		11
6-239	Seneca Creek	Md.	occurrence	n	placer	Hg		11
6-241	Waterford gold	Va.	occurrence	n	placer	Au		79
6-244	Sterling	Va.	occurrence	n	stratabound/replacement	Cu		11
6-248	Cub Run Copper	Va.	occurrence	n	hornfels/replacement	Cu		24
6-249	Chantilly	Va.	occurrence	n	stratabound/replacement	Cu		11,17
6-250	Fairfax Quarry	Va.	occurrence	n	diabase-host/vein	Cu		19,75
6-251	Bull Run	Va.	occurrence	n	placer	Au		11
6-252	Manassas	Va.	occurrence	n	vein	Ba		75,93
6-255	Calverton	Va.	occurrence	n	stratabound/replacement	Zn		45
6-257	Botts barite	Va.	occurrence	n	vein	Ba		23,75
6-262	Mountain Run	Va.	occurrence	n	hornfels/replacement	Cu	Fe U	35
6-263	Stevensburg	Va.	occurrence	n	stratabound/replacement	Zn Cu		11
6-264	Culpeper prospect	Va.	occurrence	n	hornfels/skarn	Cu	Fe	75,93
7-268	Scottsville barite	Va.	occurrence	n	vein	Ba		124
7-269	Dolan Property	Va.	occurrence	n	vein/fault zone	Cu		26,75
8-270	Bell Branch gold	N. C.	occurrence	n	placer	Au		79
9-274	Harrisville barite	N. C.	occurrence	n	vein	Ba		13
9-275	Mangum gold 2	N. C.	occurrence	n	placer	Au		79
9-276	Mangum gold 1	N. C.	occurrence	n	placer	Au		79

Table 1C, occurrences listed by type of occurrence and size, continued.

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a/ The area of the occurrence location is indicated by the first number of the occurrence number category. 0 indicates areas north of the Hartford basin in New Hampshire. 1 indicates the Hartford basin and vicinity, Massachusetts. 2 indicates the Hartford basin and vicinity, Connecticut. 3 indicates the Newark basin, New Jersey. 4 indicates the Newark basin and vicinity, Pennsylvania. 5 indicates the Gettysburg basin and vicinity, Pennsylvania. 6 indicates the Culpeper basin, Maryland and Virginia. 7 indicates other in Virginia. 8 indicates the Davie County basin area, North Carolina. 9 indicates the Deep River basin area, North Carolina.

b/ Ore production history and size of occurrence. An l, m, n, or u indicates ore production or reserves greater than 100,000 tons, between 1000 and 100,000 tons, less than 1000 tons, or unknown, respectively.

c/ Number of reference citation, as listed in Table 1, section E.

Table 1. Inventory of metal mines and occurrences associated with the early Mesozoic basins of the Eastern U. S.
Section D. Occurrences listed by metal association.

occurrence no.	name	state	a/ production	b/ deposit type	c/ metal association principal	accessory	d/ References
Ag -- SILVER -- principal metal							
2-071	silver prospect	Connecticut	p n	4	Ag		62
6-243	Sugarland Run	Virginia	p n	4	Cu Ag		11
Ag -- SILVER -- accessory metal							
0-010	Winchester mine	New Hampshire	m n	5	Pb	Ag	80
1-028	Manhan Lead 1	Massachusetts	m m	5	Pb Ba	Ag Zn Cu	25,55
1-029	Manhan Lead 2	Massachusetts	m m	5	Pb Ba	Ag Zn Cu	25,55
1-030	Manhan Lead 3	Massachusetts	m m	5	Pb Ba	Ag Zn Cu	25,55
1-031	Manhan Lead 4	Massachusetts	m m	5	Pb Ba	Ag Zn Cu	25,55
1-032	Manhan Lead 5	Massachusetts	m m	5	Pb Ba	Ag Zn Cu	25,55
1-033	Southampton	Massachusetts	m n	5	Pb Cu	Ag Zn Ba	43,55,57
2-039	Newgate Prison	Connecticut	m m	4	Cu	Ag U	47,88,89,101,128,130
2-042	Bristol Copper	Connecticut	m m	5	Cu	Ag U	7,65,101,105
2-054	Middletown Lead	Connecticut	m n	5	Pb	Ag	92
2-057	New Haven mine	Connecticut	m n	5	Ba	Cu Ag Sr	32,33b
2-064	Jinny Hill	Connecticut	m l	5	Ba	Cu Ag	32,33
2-066	Gaylord	Connecticut	p n	5	Cu	Ba Ag	32,33,104
2-067	Tallman's Mine	Connecticut	m m	5	Cu	Ba Ag	33,89,104
2-068	copper prospect	Connecticut	p n	2	Cu	Ba Ag	33
2-069	Copper Valley	Connecticut	p n	5	Cu	Ag	32,33
3-076	Schuyler Mine	New Jersey	m m	4	Cu	Ag	16,70,84,136
3-083	New Brunswick	New Jersey	m n	4	Cu	Ag	136
3-086	Griggstown	New Jersey	m n	4	Cu	Ag Au	73,136
4-103	New Galena	Pennsylvania	m l	5	Pb Zn	Ag Au Cu	22,28,98,110,111,134
4-125	Whim mine	Pennsylvania	m m	5	Pb Cu	Zn Ag	22,98,111,135
4-126	Ecton mine	Pennsylvania	m m	5	Pb	Zn Ag	22,98,111,135
4-141	Charlestown mine	Pennsylvania	m n	5	Pb Ba	Zn Cu Ag	95,111,126
4-142	Wheatley Mine	Pennsylvania	m m	5	Pb Zn	Cu Ag Mo	12,50,59,95,108,111
4-143	Chester Co. mine	Pennsylvania	m m	5	Pb Zn	Cu Ag	5,38,77,91,111,126
4-144	Montgomery Co.	Pennsylvania	m m	5	Zn Pb	Cu Ag	78,91,96,98,111,126
4-145	SW Chester mine	Pennsylvania	m m	5	Pb Zn	Cu Ag	5,38,77,91,111,126
4-146	Brookdale mine	Pennsylvania	m m	5	Zn Pb	Cu Ag	12,50,59,96,108,111
4-147	Phoenix mine	Pennsylvania	m m	5	Zn Pb	Ag Cu	12,50,59,96,108,111
4-171	Grace Mine	Pennsylvania	m m	1	Fe Cu	Co Ag Au	6,107
5-179	Cornwall mine	Pennsylvania	m l	1	Fe Cu	Au Ag Co	39,46,67,69,98,117
5-220	Clapper farm	Pennsylvania	o n	2	Cu Au	Ag	114
5-225	Stone Jug mine	Pennsylvania	m n	2	Cu	Au Ag Mo	113
7-267	Albemarle mine	Virginia	m u	5	Zn Pb	Ag	42,82,127
Au -- GOLD -- principal metal							
4-105	Diehl's Mine	Pennsylvania	o n	3	Au	Cu	4,44,98,131
5-220	Clapper farm	Pennsylvania	o n	2	Cu Au	Ag	114
6-237	Dawsonville 1	Maryland	o n	6	Au		11
6-238	Dawsonville 2	Maryland	o n	6	Au		11
6-241	Waterford gold	Virginia	o n	6	Au		79
6-251	Bull Run	Virginia	o n	6	Au		11
8-270	Bell Branch gold	North Carolina	o n	6	Au		79
9-271	Whomble prospect	North Carolina	p n	6	Au		10
9-275	Mangum gold 2	North Carolina	o n	6	Au		79
9-276	Mangum gold 1	North Carolina	o n	6	Au		79

Table 1D, occurrences listed by metal association, continued.

occurrence no.	name	state	a/ production	b/ deposit type	c/ metal association principal	c/ metal association accessory	d/ References
Au -- GOLD -- accessory metal							
3-086	Griggstown	New Jersey	m n	4	Cu	Ag Au	73,136
4-103	New Galena	Pennsylvania	m l	5	Pb Zn	Ag Au Cu	22,28,98,110,111,134
4-117	Young's mine	Pennsylvania	m n	2	Cu	Au	4,44,84,98,131
4-171	Grace Mine	Pennsylvania	m m	1	Fe Cu	Co Ag Au	6,107
5-179	Cornwall mine	Pennsylvania	m l	1	Fe Cu	Au Ag Co	39,46,67,69,98,117
5-225	Stone Jug mine	Pennsylvania	m n	2	Cu	Au Ag Mo	113
5-226	Hunterstown	Pennsylvania	p n	2	Cu	Au	58,79,98
Ba -- BARITE -- principal commodity							
1-028	Manhan Lead 1	Massachusetts	m m	5	Pb Ba	Ag Zn Cu	25,55
1-029	Manhan Lead 2	Massachusetts	m m	5	Pb Ba	Ag Zn Cu	25,55
1-030	Manhan Lead 3	Massachusetts	m m	5	Pb Ba	Ag Zn Cu	25,55
1-031	Manhan Lead 4	Massachusetts	m m	5	Pb Ba	Ag Zn Cu	25,55
1-032	Manhan Lead 5	Massachusetts	m m	5	Pb Ba	Ag Zn Cu	25,55
2-051	Berlin Moores Mill	Connecticut	m n	5	Ba		48,87,104
2-056	barite vein	Connecticut	o n	5	Ba		33b
2-057	New Haven mine	Connecticut	m n	5	Ba	Cu Ag Sr	32,33b
2-058	Cheshire Mine 3	Connecticut	m u	5	Ba		32
2-059	Cheshire Mine 2	Connecticut	m u	5	Ba		32
2-061	Booth & Hinman	Connecticut	m n	5	Ba		32
2-062	Cheshire Mine 1	Connecticut	m u	5	Ba		32
2-064	Jinny Hill	Connecticut	m l	5	Ba	Cu Ag	32,33
2-065	Cross Rock	Connecticut	m n	5	Cu Ba		33
3-087	Hopewell Barite	New Jersey	m m	5	Ba		15,21
4-090	Ingham Spring	Pennsylvania	p n	5	Cu Ba		98,131,134
4-092	Buckmanville	Pennsylvania	m n	5	Ba	Cu	98,118,131,134
4-093	Buckingham	Pennsylvania	o n	5	Ba		44,98
4-094	W. Buckmanville	Pennsylvania	p n	5	Ba Cu		98,131
4-095	Bushington	Pennsylvania	o n	5	Ba		44,98
4-129	Jug Hollow mine	Pennsylvania	m m	5	Ba Zn	Cu Pb	44,77,96,111
4-141	Charlestown mine	Pennsylvania	m n	5	Pb Ba	Zn Cu Ag	95,111,126
5-183	Safe Harbor	Pennsylvania	o n	5	Zn Ba		8,98
6-236	Boyds barite	Maryland	o n	5	Ba		94
6-252	Manassas	Virginia	o n	5	Ba		75,93
6-254	St. Stephens	Virginia	m m	5	Ba		11,23,36,71,75,93
6-256	Cedar Run	Virginia	m m	5	Ba		11,23,36,71,75
6-257	Botts barite	Virginia	o n	5	Ba		23,75
6-260	Gear Barite	Virginia	p n	5	Ba		23,36,75
6-261	Kemper	Virginia	p n	5	Ba		23,36,71,75
7-268	Scottsville barite	Virginia	o n	5	Ba		124
9-274	Harrisville barite	North Carolina	o n	5	Ba		13
Ba -- BARITE -- accessory commodity							
0-002	Will Wise mine	New Hampshire	m n	5	F	Ba Pb	3
0-003	Stoddard mine 1	New Hampshire	m m	5	F	Ba Pb	3
0-004	Stoddard mine 2	New Hampshire	m m	5	F	Ba Pb	3
0-005	Springer mine	New Hampshire	m m	5	F	Ba Pb Cu	3
0-007	Pierce mine	New Hampshire	m m	5	F	Ba Pb	3
1-012	Turners Falls 1	Massachusetts	o n	5	Cu	Ba	25,43,55,57,132
1-013	Turners Falls 2	Massachusetts	o n	5	Cu	Ba	25,43,55,57,132

Table 1D, occurrences listed by metal association, continued.

occurrence no.	name	state	a/ production	b/ deposit type	c/ metal association principal	accessory	d/ References
Ba -- BARITE -- accessory commodity, Continued							
1-014	Deerfield	Massachusetts	o u	5	Pb	Ba	25,55,57
1-015	Unnamed Pb-Ba	Massachusetts	o u	5	Pb	Ba	25,55,57
1-016	Mt. Esther	Massachusetts	o u	5	Pb	Ba	43,55,57
1-017	Leverett	Massachusetts	m m	5	Pb	Ba Cu	25,43,53,57,64,85
1-018	Unnamed Pb-Ba 4	Massachusetts	o n	5	Pb	Ba Cu	25
1-021	Unnamed Pb-Ba 1	Massachusetts	o n	5	Pb	Ba Cu	25
1-022	Unnamed Pb-Ba 3	Massachusetts	o n	5	Pb	Ba Cu	25
1-023	Unnamed Pb-Ba 2	Massachusetts	o n	5	Pb	Ba Cu	25
1-025	Hatfield Lead	Massachusetts	m m	5	Pb	Ba Cu	25,43,54,57,133
1-026	Unnamed Pb-Ba 2	Massachusetts	m m	5	Pb	Ba	25,55,57
1-027	Unnamed Pb-Ba 1	Massachusetts	m m	5	Pb	Ba	25,55,57
1-033	Southampton	Massachusetts	m n	5	Pb Cu	Ag Zn Ba	43,55,57
2-041	Trinity College	Connecticut	o n	5	Cu	Ba	100
2-044	basalt quarry	Connecticut	o n	5		Ba	106
2-047	Columbus Blvd.	Connecticut	o n	5	Zn Pb	Cu Ba	47
2-048	Ellis Street	Connecticut	o n	5	Cu	Ba	47
2-050	Mattabesset River	Connecticut	m n	5	Pb	Zn Ba	48,87,104
2-053	barite vein	Connecticut	o n	5		Ba	72
2-066	Gaylord	Connecticut	p n	5	Cu	Ba Ag	32,33,104
2-067	Tallman's Mine	Connecticut	m m	5	Cu	Ba Ag	33,89,104
2-068	copper prospect	Connecticut	p n	2	Cu	Ba Ag	33
Co -- COBALT -- accessory metal							
4-155	Gickerville	Pennsylvania	o n	3	As Co		44,98
4-113	Kibblehouse quarry	Pennsylvania	o n	2	Cu	Co	112,116
4-160	French Creek mines	Pennsylvania	m l	1	Fe Cu	Zn Co	5,44,68,98,109
4-171	Grace Mine	Pennsylvania	m m	1	Fe Cu	Co Ag Au	6,107
5-179	Cornwall mine	Pennsylvania	m l	1	Fe Cu	Au Ag Co	39,46,67,69,98,117
Cu -- COPPER -- principal metal							
1-012	Turners Falls 1	Massachusetts	o n	5	Cu	Ba	25,43,55,57,132
1-013	Turners Falls 2	Massachusetts	o n	5	Cu	Ba	25,43,55,57,132
1-033	Southampton	Massachusetts	m n	5	Pb Cu	Ag Zn Ba	43,55,57
1-035	Woodland Dell	Massachusetts	o n	5	Cu		86
2-036	Somers sandpit	Connecticut	o n	5	Cu		86
2-037	K & F Suffield	Connecticut	o u	4	Cu		47
2-038	Simsbury mine	Connecticut	m n	4	Cu		102,104
2-039	Newgate Prison	Connecticut	m m	4	Cu	Ag U	47,88,89,101,128,130
2-040	Higley Copper	Connecticut	m m	4	Cu		47,101,130
2-041	Trinity College	Connecticut	o n	5	Cu	Ba	100
2-042	Bristol Copper	Connecticut	m m	5	Cu	Ag U	7,65,101,105
2-046	Cook's Gap	Connecticut	o n	4	Zn Cu		47
2-048	Ellis Street	Connecticut	o n	5	Cu	Ba	47
2-055	copper prospect	Connecticut	p n	2	Cu		123
2-060	copper prospect	Connecticut	p n	5	Cu		33b
2-063	copper mine	Connecticut	m u	5	Cu		48
2-065	Cross Rock	Connecticut	m n	5	Cu Ba		33
2-066	Gaylord	Connecticut	p n	5	Cu	Ba Ag	32,33,104
2-067	Tallman's Mine	Connecticut	m m	5	Cu	Ba Ag	33,89,104
2-068	copper prospect	Connecticut	p n	2	Cu	Ba Ag	33

Table 1D, occurrences listed by metal association, continued.

occurrence no.	name	state	a/	b/ produc- tion	deposit type	c/ metal association principal	accessory	d/ References
Cu -- COPPER -- principal metal, Continued								
2-069	Copper Valley	Connecticut	p	n	5	Cu	Ag	32,33
2-070	copper prospect	Connecticut	p	n	2	Cu		32,33
2-072	Totowa mine	New Jersey	m	u	4	Cu		136
3-073	Glen Ridge Mine	New Jersey	m	m	4	Cu		73,84,136
3-074	Wigwam Brook	New Jersey	m	u	4	Cu		136
3-075	Dod Mine	New Jersey	m	m	4	Cu		136
3-076	Schuyler Mine	New Jersey	m	m	4	Cu	Ag	16,70,84,136
3-078	Hoffman	New Jersey	m	n	4	Cu		73,84,136
3-079	Stony Brook	New Jersey	m	m	4	Cu		136
3-080	Bridgewater	New Jersey	m	u	4	Cu		18,52,84,129,136
3-081	Chimney Rock	New Jersey	m	n	4	Cu		73,136
3-082	Menlo Park Mine	New Jersey	m	n	5	Cu		73,84,136
3-083	New Brunswick	New Jersey	m	n	4	Cu	Ag	136
3-084	Flemington	New Jersey	m	n	4	Cu		73,84,136
3-085	Monmouth Junction	New Jersey	p	n	2	Cu		76
3-086	Griggstown	New Jersey	m	n	4	Cu	Ag Au	73,136
3-088	Woosamonsa prospect	New Jersey	p	n	2	Cu		66,73b,136
4-089	New Hope	Pennsylvania	o	n	2	Cu		98,131
4-090	Ingham Spring	Pennsylvania	p	n	5	Cu Ba		98,131,134
4-091	Solebury	Pennsylvania	m	n	2	Cu		98,118,131,134
4-094	W. Buckmanville	Pennsylvania	p	n	5	Ba Cu		98,131
4-096	Lodi	Pennsylvania	o	n	2	Cu		98,131
4-097	Tettemer's mine	Pennsylvania	m	n	2	Cu		98,131
4-098	Uhlerstown	Pennsylvania	o	n	2	Cu		98,131
4-099	Ferndale	Pennsylvania	o	n	2	Cu		98,131
4-100	Bursonville	Pennsylvania	o	n	2	Cu		98,131
4-101	Keller's Church	Pennsylvania	p	n	4	Cu		98,131
4-102	Hagersville	Pennsylvania	o	n	4	Cu		98,131
4-106	Sellersville	Pennsylvania	o	n	4	Cu		27,44,98
4-107	Drakes Crossrd.	Pennsylvania	o	n	4	Cu		44,98,131
4-108	Leithsville mine	Pennsylvania	m	u	4	Cu		27,98
4-109	Coopersburg	Pennsylvania	p	n	2	Cu		98
4-110	Pennsburg	Pennsylvania	o	n	4	Cu		44,98,131
4-111	Red Hill	Pennsylvania	o	n	4	Cu		98,131
4-112	Sumneytown	Pennsylvania	o	n	2	Cu		44,98
4-113	Kibblehouse quarry	Pennsylvania	o	n	2	Cu	Co	112,116
4-114	Hendricks Station	Pennsylvania	p	n	2	Cu		44,98,131
4-115	Kober's mine	Pennsylvania	m	u	2	Cu	Pb	4,44,84,98,131
4-116	Karl's mine	Pennsylvania	m	u	2	Cu		4,44,84,98,131
4-117	Young's mine	Pennsylvania	m	n	2	Cu	Au	4,44,84,98,131
4-118	Schwencksville	Pennsylvania	p	n	2	Cu		98
4-119	Lederachsville	Pennsylvania	o	n	4	Cu		44,98,131
4-120	Graters Ford	Pennsylvania	o	n	4	Cu		44,98,131
4-121	Collegeville	Pennsylvania	o	n	4	Cu		44,98,131
4-122	Arcola	Pennsylvania	o	n	5	Cu		44,98
4-123	Shannonville	Pennsylvania	p	n	5	Cu		44,78,98
4-124	Perkiomen mine	Pennsylvania	m	m	5	Pb Cu	Zn	22,98,111,135
4-125	Whim mine	Pennsylvania	m	m	5	Pb Cu	Zn Ag	22,98,111,135

Table 1D, occurrences listed by metal association, continued.

occurrence no.	a/ name	state	b/ produc- tion		deposit type	c/ metal association principal	accessory	d/ References
Cu -- COPPER -- principal metal, Continued								
4-128	Port Kennedy	Pennsylvania	p	n	5	Cu		44,78,98
4-130	Congo 3	Pennsylvania	p	n	3	Cu		98,117,131
4-132	Congo 2	Pennsylvania	p	n	3	Cu		98,117,131
4-133	Congo 1	Pennsylvania	p	n	3	Cu		98,117,131
4-134	Brendlinger mine	Pennsylvania	p	n	2	Cu		84,98,131
4-135	Layfield	Pennsylvania	o	n	4	Cu		44,98,131
4-136	Gilbertville	Pennsylvania	o	n	4	Cu		44,98,131
4-137	Pennsylvania mine	Pennsylvania	m	n	2	Cu		98,118,131
4-138	Saratoga	Pennsylvania	p	n	4	Cu		5,98
4-140	Morris Copper	Pennsylvania	m	n	5	Cu		78,98
4-153	Snydersville	Pennsylvania	o	n	2	Cu		27,44,98
4-156	Dyer Quarry	Pennsylvania	o	n	3	Cu		112,114
4-157	Glasgow	Pennsylvania	o	n	4	Cu		44,98,131
4-158	Bleims mine	Pennsylvania	p	n	4	Cu		44,98
4-160	French Creek mines	Pennsylvania	m	l	1	Fe Cu	Zn Co	5,44,68,98,109
4-168	S. of Reading	Pennsylvania	o	n	2	Cu		44,98
4-171	Grace Mine	Pennsylvania	m	m	1	Fe Cu	Co Ag Au	6,107
5-179	Cornwall mine	Pennsylvania	m	l	1	Fe Cu	Au Ag Co	39,46,67,69,98,117
5-181	Glenwood Station	Pennsylvania	o	n	4	Cu		9,44,98
5-182	Lecron's	Pennsylvania	m	n	4	Cu		31,98,122
5-184	Reeser's Summit	Pennsylvania	o	n	2	Cu		98,111
5-189	Rossville roadcut	Pennsylvania	o	n	2	Cu		114,115
5-220	Clapper farm	Pennsylvania	o	n	2	Cu Au	Ag	114
5-224	Heidlersburg	Pennsylvania	o	n	2	Cu		98,120
5-225	Stone Jug mine	Pennsylvania	m	n	2	Cu	Au Ag Mo	113
5-226	Hunterstown	Pennsylvania	p	n	2	Cu	Au	58,79,98
5-227	Gettysburg	Pennsylvania	o	n	2	Cu		98,119
5-228	Bonneauville	Pennsylvania	o	n	4	Cu		30,98
5-229	Teeter's Quarry	Pennsylvania	o	n	2	Cu		68,98
5-234	Fairfield	Pennsylvania	p	n	2	Cu Fe		30,98,119,120
6-240	Sugarland	Maryland	m	n	4	Cu		11,34,36,71
6-242	Goose Creek	Virginia	p	n	2	Cu		11,36,75,93,125,130
6-243	Sugarland Run	Virginia	p	n	4	Cu Ag		11
6-244	Sterling	Virginia	o	n	4	Cu		11
6-245	Theodora	Virginia	m	n	2	Cu		11,36,60,75
6-246	Spencer Farm	Virginia	p	n	2	Cu		11,75
6-247	Chantilly prospect	Virginia	p	n	2	Cu		11,75
6-248	Cub Run Copper	Virginia	o	n	2	Cu		24
6-249	Chantilly	Virginia	o	n	4	Cu		11,17
6-250	Fairfax Quarry	Virginia	o	n	3	Cu		19,75
6-253	Brentsville	Virginia	p	n	4	Cu		11,93
6-258	Elk Run mine	Virginia	p	n	5	Cu		74,75
6-259	Bealeton mine	Virginia	m	n	2	Cu		75,93
6-262	Mountain Run	Virginia	o	n	2	Cu	Fe U	35
6-263	Stevensburg	Virginia	o	n	4	Zn Cu		11
6-264	Culpeper prospect	Virginia	o	n	1	Cu	Fe	75,93
6-265	Batna	Virginia	p	n	2	Cu		36,75,93,130
6-266	Somerset mine	Virginia	m	n	4	Cu		75,93,97,130

Table 1D, occurrences listed by metal association, continued.

occurrence no.	a/ name	state	b/ produc- tion		deposit type	c/ metal association principal	accessory	d/ References
	Cu -- COPPER -- principal metal, Continued							
7-269	Dolan Property	Virginia	o	n	5	Cu		26,75
9-272	Clegg copper mine	North Carolina	m	n	5	Cu		14
9-273	Tennessee Copper	North Carolina	p	n	5	Cu		14
	Cu -- COPPER -- accessory metal							
0-001	E. Surry Mtn. mine	New Hampshire	m	u	5	Pb	Cu	80
0-005	Springer mine	New Hampshire	m	m	5	F	Ba Pb Cu	3
1-017	Leverett	Massachusetts	m	m	5	Pb	Ba Cu	25,43,53,57,64,85
1-018	Unnamed Pb-Ba 4	Massachusetts	o	n	5	Pb	Ba Cu	25
1-021	Unnamed Pb-Ba 1	Massachusetts	o	n	5	Pb	Ba Cu	25
1-022	Unnamed Pb-Ba 3	Massachusetts	o	n	5	Pb	Ba Cu	25
1-023	Unnamed Pb-Ba 2	Massachusetts	o	n	5	Pb	Ba Cu	25
1-025	Hatfield Lead	Massachusetts	m	m	5	Pb	Ba Cu	25,43,54,57,133
1-028	Manhan Lead 1	Massachusetts	m	m	5	Pb Ba	Ag Zn Cu	25,55
1-029	Manhan Lead 2	Massachusetts	m	m	5	Pb Ba	Ag Zn Cu	25,55
1-030	Manhan Lead 3	Massachusetts	m	m	5	Pb Ba	Ag Zn Cu	25,55
1-031	Manhan Lead 4	Massachusetts	m	m	5	Pb Ba	Ag Zn Cu	25,55
1-032	Manhan Lead 5	Massachusetts	m	m	5	Pb Ba	Ag Zn Cu	25,55
2-045	Plainfield quarry	Connecticut	o	n	5		Cu Zn	106
2-047	Columbus Blvd.	Connecticut	o	n	5	Zn Pb	Cu Ba	47
2-057	New Haven mine	Connecticut	m	n	5	Ba	Cu Ag Sr	32,33
2-064	Jinny Hill	Connecticut	m	l	5	Ba	Cu Ag	32,33
4-092	Buckmanville	Pennsylvania	m	n	5	Ba	Cu	98,118,131,134
4-103	New Galena	Pennsylvania	m	l	5	Pb Zn	Ag Au Cu	22,28,98,110,111,134
4-105	Diehl's Mine	Pennsylvania	o	n	3	Au	Cu	4,44,98,131
4-127	Wetherill mine	Pennsylvania	m	m	5	Pb	Cu Zn	22,98,111,135
4-129	Jug Hollow mine	Pennsylvania	m	m	5	Ba Zn	Cu Pb	44,77,96,111
4-141	Charlestown mine	Pennsylvania	m	n	5	Pb Ba	Zn Cu Ag	95,111,126
4-142	Wheatley Mine	Pennsylvania	m	m	5	Pb Zn	Cu Ag Mo	12,50,59,95,108,111
4-143	Chester Co. mine	Pennsylvania	m	m	5	Pb Zn	Cu Ag	5,38,77,91,111,126
4-144	Montgomery Co.	Pennsylvania	m	m	5	Zn Pb	Cu Ag	78,91,96,98,111,126
4-145	SW Chester mine	Pennsylvania	m	m	5	Pb Zn	Cu Ag	5,38,77,91,111,126
4-146	Brookdale mine	Pennsylvania	m	m	5	Zn Pb	Cu Ag	12,50,59,96,108,111
4-147	Phoenix mine	Pennsylvania	m	m	5	Zn Pb	Ag Cu	12,50,59,96,108,111
4-149	Pennypacker mine	Pennsylvania	m	n	5	Pb	Cu	5,96,111
4-163	Jones-Kinney mines	Pennsylvania	m	l	1	Fe	Cu	44,63,96,98,117,121
4-170	Fritz Island mine	Pennsylvania	m	l	1	Fe	Cu	20,44,98,117
	F -- FLUORITE -- principal commodity							
0-002	Will Wise mine	New Hampshire	m	n	5	F	Ba Pb	3
0-003	Stoddard mine 1	New Hampshire	m	m	5	F	Ba Pb	3
0-004	Stoddard mine 2	New Hampshire	m	m	5	F	Ba Pb	3
0-005	Springer mine	New Hampshire	m	m	5	F	Ba Pb Cu	3
0-006	fluorite prospect	New Hampshire	p	n	5	F		3
0-007	Pierce mine	New Hampshire	m	m	5	F	Ba Pb	3
0-008	Streeter Hill	New Hampshire	o	n	5	F	Pb	3
	F -- FLUORITE -- accessory commodity							
2-052	limestone quarry	Connecticut	o	n	5		F	48
	Fe -- IRON -- principal metal							
1-011	Bernardston	Massachusetts	o	n	1	Fe		1,2,25b

Table 1D, occurrences listed by metal association, continued.

occurrence no.	a/ name	state	b/ produc- tion	deposit type	c/ metal association principal	accessory	d/ References
Fe -- IRON -- principal metal, Continued							
3-077	Laurel Hill	New Jersey	o n	5	Fe		90
4-131	Fegley mine	Pennsylvania	m n	5	Fe		44,51,98,117
4-150	Boyertown mine	Pennsylvania	m n	1	Fe		20,44,51,98,117
4-151	Stonersville	Pennsylvania	p n	1	Fe		98,117
4-152	Brower mine	Pennsylvania	m m	1	Fe		98,117
4-154	Esterly mine	Pennsylvania	m u	1	Fe		20,98,117
4-159	Unnamed Fe mine	Pennsylvania	m u	1	Fe		5,98
4-160	French Creek mines	Pennsylvania	m l	1	Fe Cu	Zn Co	5,44,68,98,109
4-161	Knauertown	Pennsylvania	p n	1	Fe		5,98
4-162	Pine Swamp	Pennsylvania	p n	1	Fe		37,98,110
4-163	Jones-Kinney mines	Pennsylvania	m l	1	Fe	Cu	44,63,96,98,117,121
4-164	Hopewell mine	Pennsylvania	m u	1	Fe		5,41,44,96,98,99,103
4-165	Leighton mine	Pennsylvania	m m	1	Fe		5,96,98
4-166	Warwick mine	Pennsylvania	m l	1	Fe		5,44,96,98,117
4-167	Steels mine	Pennsylvania	m u	1	Fe		5,44,96,98
4-169	Raudenbush mine	Pennsylvania	m m	1	Fe		20,98,117
4-170	Fritz Island mine	Pennsylvania	m l	1	Fe	Cu	20,44,98,117
4-171	Grace Mine	Pennsylvania	m l	1	Fe Cu	Co Ag Au	6,107
4-172	Bylers mine	Pennsylvania	m l	1	Fe		5,98
5-173	Wheatfield mine	Pennsylvania	m l	1	Fe		20,44,98,117
5-174	Ruth mine	Pennsylvania	m m	1	Fe		20,44,98,117
5-175	Doner mine	Pennsylvania	m m	1	Fe		69,98,117
5-176	Mt. Pleasant	Pennsylvania	p n	1	Fe		98,117
5-177	Rexmont Reservoir	Pennsylvania	p n	1	Fe		98,117
5-178	Carper mine	Pennsylvania	m m	2	Fe		40,98,117
5-179	Cornwall mine	Pennsylvania	m l	1	Fe Cu	Au Ag Co	39,46,67,69,98,117
5-180	Hummelstown	Pennsylvania	m m	1	Fe		98,117
5-185	Mt. Pleasant 2	Pennsylvania	p n	1	Fe		29,98,122
5-186	Mt. Pleasant 1	Pennsylvania	p n	1	Fe		29,98,122
5-187	Wellsville 2	Pennsylvania	p n	1	Fe		29,98,122
5-188	Wellsville 1	Pennsylvania	p n	1	Fe		29,98,122
5-190	Harman mine	Pennsylvania	m n	1	Fe		29,98
5-191	Brenneman mine	Pennsylvania	m n	1	Fe		29,98
5-192	Altland mine	Pennsylvania	m n	1	Fe		29,98
5-193	Comfort mine	Pennsylvania	m n	1	Fe		29,98
5-194	Cadwalader mine	Pennsylvania	m n	1	Fe		29,98
5-195	Marshall mine	Pennsylvania	m n	1	Fe		29,98
5-196	Sluthower mine	Pennsylvania	m n	1	Fe		29,98
5-197	Minebank School 1	Pennsylvania	m m	1	Fe		29,98,117
5-198	Minebank School 2	Pennsylvania	m m	1	Fe		29,98,117
5-199	Roler	Pennsylvania	p n	1	Fe		98,122
5-200	Smith prospect	Pennsylvania	p n	1	Fe		29,98
5-201	Grantham mines	Pennsylvania	m m	1	Fe		20,29,98,117
5-202	Dillsburg N	Pennsylvania	p n	1	Fe		98,122
5-203	McCormick mine	Pennsylvania	m l	1	Fe		20,29,49,61,83,98,117
5-204	Longnecker mine	Pennsylvania	m l	1	Fe		20,29,49,61,83,98,117
5-205	King mine	Pennsylvania	m m	1	Fe		20,29,49,61,83,98,117
5-206	Underwood mine	Pennsylvania	m l	1	Fe		20,29,49,61,83,98,117

Table 1D, occurrences listed by metal association, continued.

occurrence no.	a/ name	state	b/ produc- tion	deposit type	c/ metal association principal	accessory	d/ References
Fe -- IRON -- principal metal, Continued							
5-207	Jauss mine	Pennsylvania	m l	1	Fe		20,29,49,61,83,98,117
5-208	Altland mine	Pennsylvania	m m	1	Fe		20,29,49,61,83,98,117
5-209	Smyser mine	Pennsylvania	m m	1	Fe		20,29,49,61,83,98,117
5-210	Bell mine	Pennsylvania	m l	1	Fe		20,29,49,61,83,98,117
5-211	Logan mine	Pennsylvania	m m	1	Fe		20,29,49,61,83,98,117
5-212	Cox mine	Pennsylvania	m m	1	Fe		20,29,49,61,83,98,117
5-213	Grove mine	Pennsylvania	m m	1	Fe		20,29,49,61,83,98,117
5-214	Bender mine	Pennsylvania	m n	1	Fe		29,68,98,117
5-215	Franklintown 1	Pennsylvania	p n	1	Fe		29,98,117
5-216	Franklintown 2	Pennsylvania	p n	1	Fe		29,98,117
5-217	Franklintown 3	Pennsylvania	p n	1	Fe		29,98,117
5-218	Franklintown 4	Pennsylvania	p n	1	Fe		29,98,117
5-219	Lichte mine	Pennsylvania	m m	1	Fe		29,98
5-221	Center Mills 1	Pennsylvania	p n	1	Fe		98,119,120
5-222	Center Mills 2	Pennsylvania	p n	1	Fe		98,119,120
5-223	Idaville	Pennsylvania	p n	1	Fe		98,119
5-230	Cashtown 2	Pennsylvania	p n	1	Fe		84,98,120
5-231	Cashtown 1	Pennsylvania	p n	1	Fe		84,98,120
5-232	Orrtana	Pennsylvania	o n	1	Fe		98,119
5-233	Carr Hill	Pennsylvania	p n	1	Fe		98,119,120
5-234	Fairfield	Pennsylvania	p n	2	Cu Fe		30,98,119,120
5-235	McNair Farm	Pennsylvania	p n	1	Fe		98,119
Fe -- IRON -- accessory metal							
6-262	Mountain Run	Virginia	o n	2	Cu	Fe U	35
6-264	Culpeper prospect	Virginia	o n	1	Cu	Fe	75,93
Pb -- LEAD -- principal metal							
0-001	E. Surry Mtn. mine	New Hampshire	m u	5	Pb	Cu	80
0-009	galena occurrence	New Hampshire	o n	5	Pb		80
0-010	Winchester mine	New Hampshire	m n	5	Pb	Ag	80
1-014	Deerfield	Massachusetts	o u	5	Pb	Ba	25,55,57
1-015	Unnamed Pb-Ba	Massachusetts	o u	5	Pb	Ba	25,55,57
1-016	Mt. Esther	Massachusetts	o u	5	Pb	Ba	43,55,57
1-017	Leverett	Massachusetts	m m	5	Pb	Ba Cu	25,43,53,57,64,85
1-018	Unnamed Pb-Ba 4	Massachusetts	o n	5	Pb	Ba Cu	25
1-019	Whately-Wm. 1	Massachusetts	m u	5	Pb		25,43,55,57,133
1-020	Whately-Wm. 2	Massachusetts	m u	5	Pb		25,43,55,57,133
1-021	Unnamed Pb-Ba 1	Massachusetts	o n	5	Pb	Ba Cu	25
1-022	Unnamed Pb-Ba 3	Massachusetts	o n	5	Pb	Ba Cu	25
1-023	Unnamed Pb-Ba 2	Massachusetts	o n	5	Pb	Ba Cu	25
1-024	Whately-Wm. 3	Massachusetts	m u	5	Pb		25,43,55,57,133
1-025	Hatfield Lead	Massachusetts	m m	5	Pb	Ba Cu	25,43,54,57,133
1-026	Unnamed Pb-Ba 2	Massachusetts	m m	5	Pb	Ba	25,55,57
1-027	Unnamed Pb-Ba 1	Massachusetts	m m	5	Pb	Ba	25,55,57
1-028	Manhan Lead 1	Massachusetts	m m	5	Pb Ba	Ag Zn Cu	25,55
1-029	Manhan Lead 2	Massachusetts	m m	5	Pb Ba	Ag Zn Cu	25,55
1-030	Manhan Lead 3	Massachusetts	m m	5	Pb Ba	Ag Zn Cu	25,55
1-031	Manhan Lead 4	Massachusetts	m m	5	Pb Ba	Ag Zn Cu	25,55
1-032	Manhan Lead 5	Massachusetts	m m	5	Pb Ba	Ag Zn Cu	25,55

Table 1D, occurrences listed by metal association, continued.

occurrence no.	name	state	a/ production	b/ deposit type	c/ metal association principal	accessory	d/ References
Pb -- LEAD -- principal metal, Continued							
1-033	Southampton	Massachusetts	m n	5	Pb Cu	Ag Zn Ba	43,55,57
1-034	New Mine vein	Massachusetts	m u	5	Pb		56,81
2-047	Columbus Blvd.	Connecticut	o n	5	Zn Pb	Cu Ba	47
2-050	Mattabesset River	Connecticut	m n	5	Pb	Zn Ba	48,87,104
2-054	Middletown Lead	Connecticut	m n	5	Pb	Ag	92
4-103	New Galena	Pennsylvania	m l	5	Pb Zn	Ag Au Cu	22,28,98,110,111,134
4-104	Schuylkill Falls	Pennsylvania	o n	5	Pb	Zn	44,78,98
4-124	Perkiomen mine	Pennsylvania	m m	5	Pb Cu	Zn	22,98,111,135
4-125	Whim mine	Pennsylvania	m m	5	Pb Cu	Zn Ag	22,98,111,135
4-126	Ecton mine	Pennsylvania	m m	5	Pb	Zn Ag	22,98,111,135
4-127	Wetherill mine	Pennsylvania	m m	5	Pb	Cu Zn	22,98,111,135
4-141	Charlestown mine	Pennsylvania	m n	5	Pb Ba	Zn Cu Ag	95,111,126
4-142	Wheatley Mine	Pennsylvania	m m	5	Pb Zn	Cu Ag Mo	12,50,59,95,108,111
4-143	Chester Co. mine	Pennsylvania	m m	5	Pb Zn	Cu Ag	5,38,77,91,111,126
4-144	Montgomery Co.	Pennsylvania	m m	5	Zn Pb	Cu Ag	78,91,96,98,111,126
4-145	SW Chester mine	Pennsylvania	m m	5	Pb Zn	Cu Ag	5,38,77,91,111,126
4-146	Brookdale mine	Pennsylvania	m m	5	Zn Pb	Cu Ag	12,50,59,96,108,111
4-147	Phoenix mine	Pennsylvania	m m	5	Zn Pb	Ag Cu	12,50,59,96,108,111
4-148	Pethericks Penn	Pennsylvania	p n	5	Pb		78,98
4-149	Pennypacker mine	Pennsylvania	m n	5	Pb	Cu	5,96,111
7-267	Albemarle mine	Virginia	m u	5	Zn Pb	Ag	42,82,127
Pb -- LEAD -- accessory metal							
0-002	Will Wise mine	New Hampshire	m n	5	F	Ba Pb	3
0-003	Stoddard mine 1	New Hampshire	m m	5	F	Ba Pb	3
0-004	Stoddard mine 2	New Hampshire	m m	5	F	Ba Pb	3
0-005	Springer mine	New Hampshire	m m	5	F	Ba Pb Cu	3
0-007	Pierce mine	New Hampshire	m m	5	F	Ba Pb	3
0-008	Streeter Hill	New Hampshire	o n	5	F	Pb	3
4-115	Kober's mine	Pennsylvania	m u	2	Cu	Pb	4,44,84,98,131
4-129	Jug Hollow mine	Pennsylvania	m m	5	Ba Zn	Cu Pb	44,77,96,111
Zn -- ZINC -- principal metal							
2-043	Farmington	Connecticut	o n	5	Zn		106
2-046	Cook's Gap	Connecticut	o n	4	Zn Cu		47
2-047	Columbus Blvd.	Connecticut	o n	5	Zn Pb	Cu Ba	47
4-103	New Galena	Pennsylvania	m l	5	Pb Zn	Ag Au Cu	22,28,98,110,111,134
4-129	Jug Hollow mine	Pennsylvania	m m	5	Ba Zn	Cu Pb	44,77,96,111
4-139	Phoenix. Tunnel	Pennsylvania	o n	5	Zn		44,98
4-142	Wheatley Mine	Pennsylvania	m m	5	Pb Zn	Cu Ag Mo	12,50,59,95,108,111
4-143	Chester Co. mine	Pennsylvania	m m	5	Pb Zn	Cu Ag	5,38,77,91,111,126
4-144	Montgomery Co.	Pennsylvania	m m	5	Zn Pb	Cu Ag	78,91,96,98,111,126
4-145	SW Chester mine	Pennsylvania	m m	5	Pb Zn	Cu Ag	5,38,77,91,111,126
4-146	Brookdale mine	Pennsylvania	m m	5	Zn Pb	Cu Ag	12,50,59,96,108,111
4-147	Phoenix mine	Pennsylvania	m m	5	Zn Pb	Ag Cu	12,50,59,96,108,111
5-183	Safe Harbor	Pennsylvania	o n	5	Zn Ba		8,98
6-255	Calverton	Virginia	o n	4	Zn		45
6-263	Stevensburg	Virginia	o n	4	Zn Cu		11
7-267	Albemarle mine	Virginia	m u	5	Zn Pb	Ag	42,82,127

Table 1D, occurrences listed by metal association, continued.

occurrence no.	name	state	a/	b/ production	deposit type	c/ metal association principal	accessory	d/ References
	Zn -- ZINC -- accessory metal							
1-028	Manhan Lead 1	Massachusetts	m	m	5	Pb Ba	Ag Zn Cu	25,55
1-029	Manhan Lead 2	Massachusetts	m	m	5	Pb Ba	Ag Zn Cu	25,55
1-030	Manhan Lead 3	Massachusetts	m	m	5	Pb Ba	Ag Zn Cu	25,55
1-031	Manhan Lead 4	Massachusetts	m	m	5	Pb Ba	Ag Zn Cu	25,55
1-032	Manhan Lead 5	Massachusetts	m	m	5	Pb Ba	Ag Zn Cu	25,55
1-033	Southampton	Massachusetts	m	n	5	Pb Cu	Ag Zn Ba	43,55,57
2-045	Plainfield quarry	Connecticut	o	n	5		Cu Zn	106
2-050	Mattabesset River	Connecticut	m	n	5	Pb	Zn Ba	48,87,104
4-104	Schuylkill Falls	Pennsylvania	o	n	5	Pb	Zn	44,78,98
4-124	Perkiomen mine	Pennsylvania	m	m	5	Pb Cu	Zn	22,98,111,135
4-125	Whim mine	Pennsylvania	m	m	5	Pb Cu	Zn Ag	22,98,111,135
4-126	Ecton mine	Pennsylvania	m	m	5	Pb	Zn Ag	22,98,111,135
4-127	Wetherill mine	Pennsylvania	m	m	5	Pb	Cu Zn	22,98,111,135
4-141	Charlestown mine	Pennsylvania	m	n	5	Pb Ba	Zn Cu Ag	95,111,126
4-160	French Creek mines	Pennsylvania	m	l	1	Fe Cu	Zn Co	5,44,68,98,109
	OTHER METALS							
4-155	Gickerville	Pennsylvania	o	n	3	As Co		44,98
6-239	Seneca Creek	Maryland	o	n	6	Hg		11
4-142	Wheatley Mine	Pennsylvania	m	m	5	Pb Zn	Cu Ag Mo	12,50,59,95,108,111
5-225	Stone Jug mine	Pennsylvania	m	n	2	Cu	Au Ag Mo	113
2-057	New Haven mine	Connecticut	m	n	5	Ba	Cu Ag Sr	32,33b
2-039	Newgate Prison	Connecticut	m	m	4	Cu	Ag U	47,88,89,101,128,130
2-042	Bristol Copper	Connecticut	m	m	5	Cu	Ag U	7,65,101,105
6-262	Mountain Run	Virginia	o	n	2	Cu	Fe U	35

a/ The area of the occurrence location is indicated by the first number of the occurrence number category. 0 indicates areas north of the Hartford basin in New Hampshire. 1 indicates the Hartford basin and vicinity, Massachusetts. 2 indicates the Hartford basin and vicinity, Connecticut. 3 indicates the Newark basin, New Jersey. 4 indicates the Newark basin and vicinity, Pennsylvania. 5 indicates the Gettysburg basin and vicinity, Pennsylvania. 6 indicates the Culpeper basin, Maryland and Virginia. 7 indicates other in Virginia. 8 indicates the Davie County basin area, North Carolina. 9 indicates the Deep River basin area, North Carolina.

b/ Type, ore production history and size of occurrence is indicated by a two letter code. The first code letter, an m, p, or o, indicates that the occurrence is a mine, prospect, or mineral occurrence locality, respectively. The second code letter, an l, m, n, or u, indicates ore production or reserves greater than 100,000 tons, between 1000 and 100,000 tons, less than 1000 tons, or unknown, respectively.

c/ Type of deposit, indicated by a number code. 1 indicates a skarn deposit. 2 indicates a hornfels deposit. 3 indicates a diabase-hosted vein or segregation deposit. 4 indicates a sediment-hosted stratabound dissemenated or replacement deposit. 5 indicates a vein deposit. 6 indicates a placer deposit.

d/ Number of reference citation, as listed in Table 1, section E.

Table 1E. References cited in Table 1, Sections A, B, C, and D.

no.	Reference Cited
1	Bain, G.W.,1936
2	Balk, R.,1956
3	Bannerman,1941
4	Bascom et al,1931
5	Bascom & Stose,1938
6	Basu,1974
7	Bateman,1923
8	Bates,1959
9	Beck,1952
10	Becker,1895
11	Bernstein,1980
12	Blake,1860
13	Burt,1985 - personal communication
14	Carpenter,1976
15	Cook,1868
16	Cornwall,1943
17	D'Agostino & Hanshaw,1970
18	Darton,1885
19	Dietrich,1953
20	d'Invilliers,1883
21	Dombroski,1980
22	Earl,1950
23	Edmundson,1938
24	Eggleton,1975
25	Emerson,1898a
25b	Emerson,1898b
26	Espenshade,1954
27	Eyerman,1889
28	Faill,1973
29	Frazer,1877
30	Frazer,1880
31	Frazer,1886
32	Fritts,1962
33	Fritts,1963a
33b	Fritts,1963b
34	Froelich, 1975
35	Froelich, A.J.,1984 - personal communication
36	Froelich & Leavy,1981
37	Gedde,1965
38	Genth,1851
39	Geyer et al,1958
40	Geyer, Smith & Barnes,1976
41	Ghaffer-Adly,1961
42	Giannini,1959
43	Gleba,1978
44	Gordon,1922
45	Gore, P.,1983 - personal communication
46	Gray & Lapham,1961
47	Gray,1982
48	Hanshaw,1968
49	Harder,1910
50	Harvey,1865
51	Hawkes,Wedow, & Balsley,1953
52	Hayes,1949
53	Hiller,1974
54	Hiller,1975
55	Hitchcock,1823
56	Hitchcock,1832
57	Hitchcock,1835
58	Hoff & Smith,1985
59	Hoofstetten,1855
60	Hotchkiss,1884
61	Hotz,1950
62	Hovey,1889
63	Hunt,1876
64	Jahns,1951
65	Januzzi,1959
66	Kummel,1901
67	Lapham,1968
68	Lapham & Geyer,1965
69	Lapham & Gray,1973
70	Lee,1937
71	Lee,1979
72	Lehmann,1959
73	Lewis,1907a
73b	Lewis,1907b
74	Lonsdale,1927
75	Luttrell,1966
76	Master,1985 - written communication, N.J. Geol. Surv.
77	Miller,1923
78	Miller,1924
79	Minard, J.P.,1984 - personal communication
80	Morrill,1960
81	Nash,1827
82	Nelson,1962
83	Neumann,1947
84	Newhouse,1933
85	Pearre,1956
86	Peper,1977
87	Percival,1842
88	Perrin,1976
89	Potisat,1978
90	Puffer & Peters,1974
91	Reed,1949
92	Rice & Foye,1927
93	Roberts,1928
94	Rockville Crushed Stone, Inc., 1984, information
95	Rogers,1853
96	Rogers,1858
97	Rogers,1884
98	Rose,1970
99	Ross,1963

Table 1E. References cited in Table 1, sections A, B, C, and D, continued.

no.	Reference Cited
100	Ryan, Scott,1985 - personal communication
101	Schairer,1931
102	Schnabel,1964
103	Shank,1961
104	Shepard,1837
105	Silliman & Whitney,1855
106	Simpson,1966
107	Sims,1968
108	Smith,1855
109	Smith,1931
110	Smith,1973
111	Smith,1977
112	Smith,1978
113	Smith & Hoff,1977
114	Smith & others,in press
115	Smith & O'Neill,1973
116	Speer & others,1978
117	Spencer,1908
118	Stone,1939
119	Stose,1932
120	Stose & Bascom,1929
121	Stose & Bascom,1938
122	Stose & Jonas,1939
123	Stugard,1958
124	Sunderman,1958
125	Toewe,1966
126	Turnbull,1854
127	Watson,1907
128	Webster,1978
129	Weed,1903
130	Weed,1911
131	Wherry,1908
132	Willard,1952
133	Willard,1956
134	Willard & others,1959
135	Williams,1863
136	Woodward,1944

APPENDIX 1. DESCRIPTIONS OF METAL MINES AND OCCURRENCES ASSOCIATED WITH THE EARLY MESOZOIC BASINS OF THE EASTERN UNITED STATES.

Explanation for headings in the occurrence description summaries

Site Name

The most prevalent name of a mine or prospect which was used in reference descriptions or other written records is used in this category. Where multiple names have been given to one mine or prospect site, generally the most recent name has been selected. References which use these names can be found in the references section of the deposit descriptions. For prospects and mineral occurrences with no history of a designated name, in many cases a name has been selected from a nearby geographic feature, such as a hill, stream, or town.

Site Number

Each entry has been assigned a site number. The site numbers are arranged, in general, in consecutive ascending order, from north to south and east to west. The area of the occurrence location is indicated by the first number of the occurrence number category. 0 indicates areas north of the Hartford basin in New Hampshire. 1 indicates the Hartford basin and vicinity, Massachusetts. 2 indicates the Hartford basin and vicinity, Connecticut. 3 indicates the Newark basin, New Jersey. 4 indicates the Newark basin and vicinity, Pennsylvania. 5 indicates the Gettysburg basin and vicinity, Pennsylvania. 6 indicates the Culpeper basin, Maryland and Virginia. 7 indicates other in Virginia. 8 indicates the Davie County basin area, North Carolina. 9 indicates the Deep River basin area, North Carolina.

Commodity

The metallic and non-metallic commodities listed in the descriptions are copper, gold, iron, lead, silver, zinc, barite, and fluorite. A few selected entries for arsenic, cobalt, mercury, molybdenum, and uranium. are included. Uranium occurrences with no other associated metal have been omitted from the compilation; the three uranium entries are for base-metal occurrences with associated uranium enrichment.

Selected metals and non-metals (Ba, F) which are present in anomalous quantities at each occurrence are listed in the commodity category of the occurrence descriptions using the common chemical symbols for these elements. The elements listed in the major subcategory are those base- and selected non-metals which are most abundant at each occurrence. In most cases, the elements noted as major are principal components of some individual minerals in the occurrence, such as Fe in magnetite and Cu in chalcopyrite. The elements listed in the minor subcategory are those base- and selected non-metals which occur in minor but anomalous amounts at each occurrence. Elements in this subcategory may occur both as major components in trace minerals or as minor components in other minerals (such as Ag in galena) at the occurrence.

Deposit Types

In general, the deposit types are grouped into six categories, with differing structural and genetic settings.

1) skarn and skarn/replacement deposits in marble bordering tholeiitic diabase sheets which formed by replacement of carbonate-bearing rocks during contact metamorphism and metasomatism. Metal deposits that contain skarn as gangue are termed skarn deposits.

2) hornfels deposits in metamorphosed calcareous siltstone units bordering diabase and late-stage diabase differentiates, mainly ferrogabbro and granophyre bodies. Metal deposits associated with hornfels, termed hornfels deposits, form by contact metamorphism and hydrothermal metasomatism of the host rocks with the formation of oxide, sulfide, and silicate minerals.

3) diabase-hosted vein deposits which occur as late-stage igneous segregations and veins within and bordering diabase sheets. The segregations and veins formed by a combination of magmatic and post-magmatic processes which result in disseminated replacement of host rock and epigenetic mineral fillings of tabular or sheetlike fractures in the host rock.

4) sediment-hosted and stratabound/replacement deposits which occur as stratabound disseminations or stratabound discordant veinlets and replacements of base-metal sulfides.

5) base-metal and/or barite vein deposits sometimes associated with faults, fractures, or shear zones. These occur as epigenetic mineral fillings of fractures in the host rock.

6) placer deposits in detritus derived by erosion of pre-Mesozoic igneous and metamorphic rocks bordering the basins. The placer deposits are fluvial sedimentary deposits formed by the mechanical concentration of resistant mineral grains from weathered debris.

Occurrence Type

The occurrences are classified as mines, quarries, prospects, or mineral occurrences. The mine designation is given to deposits with a written or recorded history of attempted commercial development and ore production. The prospect designation is given to sites where some excavation or mineral exploration activity has occurred. The mineral

occurrence designation is given for sites where anomalously high metal values or interesting or unusual metal-bearing minerals occur, but the area has never been mined or prospected for metals. The volume of metal-enriched rock may be extremely small for some of the mineral occurrence sites; however, these occurrences may have significance as indicators of more extensive mineralization in the area.

Location

Information on the county, state, quadrangle, latitude, and longitude of each occurrence was compiled by locating the mineral occurrence sites on standard 7 $^{1}/_{2}$ minute U. S. Geological Survey topographic sheets (scale 1:24,000 or 1:25,000), where possible. The name in the quadrangle category refers to the name of the 7 $^{1}/_{2}$ minute topographic sheets (scale 1:24,000 or 1:25,000), where possible. The name topographic sheet where the site is located. If 7 $^{1}/_{2}$ minute topographic sheets were not available for the area in question, other U. S. Geological Survey topographic maps at the largest available scale were used. The scale of these maps, where used, follow the quadrangle name in the quadrangle category. In the location comments subcategory, detailed directions as to the exact location of the occurrence is given.

Mining District

If the occurrence is located as part of a larger mining district, the name of that district will be entered in this category.

Physiographic Area

The occurrences are located within no near the early Mesozoic basins of the Eastern United States. The physiographic areas fall into three categories: 1) within an early Mesozoic basin, for which a specific basin name may be given, 2) at the contact between the basin and other rock

sequences, or 3) within pre-Mesozoic rock sequences bordering the early Mesozoic basins, for which the term piedmont may be used.

History

Historical information on the occurrence, including ownership, years of mine activity, and uses of the mined material, are given here.

Production/Assays

Available information on the amount of ore production is given here for the mined deposits. In most cases, only cumulative production values or estimates covering the entire period of mining activity is given. Assay information, where available is also included here.

Minerals

Mineral associations which are recorded for each occurrence are listed here. Economic minerals are those which contain base-metals and selected non-metals (barium in barite, fluorine in fluorite). Gangue minerals are the non-economic minerals commonly associated with the occurrence, and are typically silicates and carbonates. The relative abundance of minerals in these two categories are ranked into major, minor, and trace amount categories.

Paragenesis

The sequence in which the minerals in a given occurrence formed will be given here.

Host Rock

The rock which served as a locus of ore deposition is given here. Geologic age of the host rock may be given.

Geologic Description

Detailed information on the geology of the occurrence is given here. Included is information on the structural setting, mineralogical textures, and age of the deposit and its host rocks.

Reference Information

All references used in the compilation of this information are given in alphabetical order by author and year. Complete bibliographic information for the reference citations listed here are given in the occurrence bibliography section of this report.

SITE NAME: East Surry Mountain Mine SITE NUMBER: 0-001

COMMODITY: major Pb minor Cu DEPOSIT TYPE: fault zone/vein

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Sears 8/86
DATE

LOCATION: county Cheshire state NH MINING DISTRICT
Bronson Hill

quadrangle/scale Bellows Falls 15' PHYSIOGRAPHIC AREA anticlinorium

Latitude N: 43° 02' 01" Longitude W: 72° 18' 26"

Location Comments: At end of old gold mine road, 0.4 mi SW of intersection of NH SR 10 and Hammond Hollow Road

MINERALS:

ECONOMIC: Major Galena, chalcopyrite
Minor Pyrite
Trace

GANGUE: Major Quartz
Minor
Trace

GEOLOGIC DESCRIPTION: Galena occurs in discordant veins and pods in quartz-rich fault (?) zone which extends along the east edge of the summit of Surry Mountain; geologic map (Billings, 1955) shows this zone as contact (?) between Oliverian granites and Ammonoosuc volcanics.

REFERENCES: Morrill, 1960. Field checked by Sears and Woodruff, U.S.G.S., 1986.

SITE NAME: Will Wise Mine SITE NUMBER: 0-002

COMMODITY: major F minor DEPOSIT TYPE: vein

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Robinson 3/87
DATE

LOCATION: county Cheshire state NH MINING DISTRICT

quadrangle/scale Keene 7.5" PHYSIOGRAPHIC AREA

Latitude N: 42° 56' 55" Longitude W: 72° 29' 10"

Location Comments: Vein located on the northeast flank of Bald Hill, Westmoreland. Reached by woods trail from Corner School on the northwest.

HISTORY: An inclined shaft, 8 x 10 feet, has been sunk on the vein. Some material has been mined.

MINERALS:

ECONOMIC: Major Fluorite
Minor
Trace Galena

GANGUE: Major Quartz
Minor
Trace Barite

GEOLOGIC DESCRIPTION: Vein system is irregular and consists of quartz and quartz-fluorite interspersed with thin screens of altered wall rock. Veins strike N 10° E and dip 65° eastward. The wall rock is gently dipping feldspathic gneiss.

REFERENCES: Bannerman, 1941.

SITE NAME: Stoddard Fluorite Mine SITE NUMBER: 0-003, -004

COMMODITY: major F minor barite DEPOSIT TYPE: vein

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Robinson 3/87
DATE

LOCATION: county Cheshire state NH MINING DISTRICT

quadrangle/scale Keene 7.5' x 15' PHYSIOGRAPHIC AREA

Latitude N: #1 vein: 42° 56' 01" #2 vein: 42° 56' 00" Longitude W: #1 vein: 72° 27' 56" #2 vein: 72° 28' 03"

HISTORY: Production in years 1911-1923, 1935-1938. #1 vein (easterly) is largest and most extensively mined.

PRODUCTION/ASSAYS: 8,302 tons of fluorite reported produced from district during entire production history (U.S. Bureau of Mines Yearbook)

MINERALS:

ECONOMIC: Major Fluorite
Minor
Trace Smithsonite, malachite, sphalerite, chalcopyrite

GANGUE: Major Quartz, barite
Minor Dolomite, calcite
Trace Ankerite, siderite

HOST ROCK: Paleozoic feldspathic gneiss, near contact with schist

GEOLOGIC DESCRIPTION: #1 vein strikes N 38° E, dips 65-70° E and has been excavated over a length of 550 feet. #1 A vein strikes N 35° E and dips 70° E; width 2-3 feet; developed over a length of 50 feet. #2 vein strikes N 25° E, dips 70° to 90° W; 3-5 feet in width; developed over 110 foot length with a tunnel adit driven for 75 feet or more. The veins are banded, and have comb structure and many open cavities. Fluorite and barite are intergrown with fine-grained quartz.

REFERENCES: Bannerman, 1941.

SITE NAME: Springer Fluorite Mine SITE NUMBER: 0-005

COMMODITY: major F minor barite DEPOSIT TYPE: vein

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Robinson 3/87
DATE

LOCATION: county Cheshire state NH MINING DISTRICT

quadrangle/scale Keene 7.5' x 15' PHYSIOGRAPHIC AREA

Latitude N: 42° 55' 50" Longitude W: 72° 28' 32"

Location Comments: Two veins, #1 in a roadcut, on east side of highway 850 feet south of Westmoreland-Chesterfield boundary. #2 vein approximately 200 feet south of town line and 1400 feet east of the highway.

MINERALS:

ECONOMIC: Major Fluorite
Minor
Trace Galena, pyrite, chalcopyrite, sphalerite, bornite

GANGUE: Major Quartz
Minor Barite, calcite
Trace Kaolin, sericite (both in altered feldspathic fragments)

PARAGENESIS: Early: quartz with some fluorite and minor barite. Late: Fluorite + barite ± calcite + minor quartz ± sulfides. Fragments of feldspathic wallrock in vein are mostly altered to kaolinite and minor sericite.

HOST ROCK: feldspathic gneiss

GEOLOGIC DESCRIPTION: #1 vein strikes N 30° E and dips 80° SE; averages 14 to 15 inches in width and has been opened for a length of 12 feet. #2 vein strikes N 45° E, dips 65° SE, is as much as 72 inches in width, and has been exposed over a length of 80 feet.

REFERENCES: Bannerman, 1941.

SITE NAME: Fluorite prospect SITE NUMBER: 0-006

COMMODITY: major F DEPOSIT TYPE: vein

OCCURRENCE TYPE: __mine __quarry X prospect __min. occurrence REPORTER/ Robinson 3/87

DATE

LOCATION: county Cheshire state NH MINING DISTRICT

quadrangle/scale Keene 7.5' x 15' PHYSIOGRAPHIC AREA

Latitude N: 42° 55' 45" Longitude W: 72° 28' 18"

MINERALS:

ECONOMIC: Major Fluorite
Minor Galena
Trace

GANGUE: Major Quartz (vuggy)
Minor
Trace

HOST ROCK: Paleozoic gneiss

GEOLOGIC DESCRIPTION: See Pierce fluorite mine (0-007)

REFERENCES: Bannerman, 1941.

SITE NAME: Pierce fluorite mine SITE NUMBER: 0-007

COMMODITY: major F minor DEPOSIT TYPE: vein

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Robinson 3/87

DATE

LOCATION: county Cheshire state NH MINING DISTRICT

quadrangle/scale Keene 7.5' x 15' PHYSIOGRAPHIC AREA

Latitude N: 42° 55' 44" Longitude W: 72° 27' 55"

Location Comments: 1/4 mile due south of most easterly vein on the Stoddard property; reached by a woods road.

PRODUCTION/ASSAYS: Three openings on the vein have been made and considerable material appears to have been removed.

MINERALS:

ECONOMIC: Major Fluorite
Minor Galena
Trace Bornite, chalcopyrite, malachite, sphalerite, smithsonite, pyrite

GANGUE: Major Quartz (vuggy)
Minor Barite, dolomite
Trace

HOST ROCK: Paleozoic gneiss

GEOLOGIC DESCRIPTION: Vein system strikes N 50° E and dips 45° SE. The vein occurs at the contact of hornblende schist and gneiss (the hanging wall is schist and the footwall is gneiss). Gash veinlets rich fluorite break in a westerly direction across the gneissic footwall.

REFERENCES: Bannerman, 1941.

SITE NAME: Streeter Hill SITE NUMBER: 0-008

COMMODITY: major F minor Pb DEPOSIT TYPE: vein

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ Robinson 3/87
DATE

LOCATION: county Cheshire state NH MINING DISTRICT

quadrangle/scale Keene 7.5' x 15' PHYSIOGRAPHIC AREA

Latitude N: 42° 55' 21" Longitude W: 72° 29' 51"

Location Comments: Vein located on the east slope of Streeter Hill, Chesterfield.

MINERALS:

ECONOMIC: Major
Minor Fluorite
Trace Galena

GANGUE: Major Quartz
Minor
Trace

HOST ROCK: Paleozoic gneiss

GEOLOGIC DESCRIPTION: The vein strikes N 25° E, dips 60-65° SE. The vein is 3 to 6 feet wide and can be traced intermittently for a distance of 1600 to 1700 feet.

REFERENCES: Bannerman, 1941.

SITE NAME: Galena occurrence SITE NUMBER: 0-009

COMMODITY: major Pb minor DEPOSIT TYPE: vein

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ Robinson 3/87
DATE

LOCATION: county Chester state NH MINING DISTRICT

quadrangle/scale Winchester 7.5' x 15' PHYSIOGRAPHIC AREA

Latitude N: 42° 49' 17" Longitude W: 72° 23' 24"

Location Comments: Vein outcrops on both sides of road, approximately 0.5 mile north of pond on Spot Meadow Brook.

MINERALS:

ECONOMIC: Major Galena
Minor
Trace

GANGUE: Major Quartz
Minor
Trace

REFERENCES: Morrill, 1960.

SITE NAME: Winchester Mine SITE NUMBER: 0-010

COMMODITY: major Pb minor Ag? DEPOSIT TYPE: vein

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Robinson 3/87

DATE

LOCATION: county Cheshire state NH MINING DISTRICT

quadrangle/scale Northfield 1:24,000 PHYSIOGRAPHIC AREA

Latitude N: 42° 43' 41.6" Longitude W: 72° 26' 30.3"

Location Comments: Location approximate

HISTORY: Reported to have a shaft

MINERALS:

ECONOMIC: Major Galena
Minor
Trace

GANGUE: Major Quartz
Minor
Trace

REFERENCES: Morrill, 1960.

SITE NAME: Bernardston Magnetite Occurrence SITE NUMBER: 1-011

COMMODITY: major Fe minor Cu DEPOSIT TYPE: skarn

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ Robinson 3/87
DATE

LOCATION: county Franklin state MA MINING DISTRICT

quadrangle/scale Bernardston 1:25,000 PHYSIOGRAPHIC AREA edge of Triassic basin

Latitude N: 42° 41' 04" Longitude W: 72° 33' 12"

MINERALS:

ECONOMIC: Major Magnetite
Minor Pyrite, chalcopyrite
Trace

GANGUE: Major
Minor
Trace

HOST ROCK: Fossiliferous limestone lens in Devonian Bernardston Volcanics, adjacent to Jurassic basalt flows

REFERENCES: Balk, 1956; Bain, 1936; Emerson, 1898b.

SITE NAME: Turners Falls Copper Occurrences SITE NUMBER: 1-012, 1-013

COMMODITY: major Cu minor Ba DEPOSIT TYPE: Vein

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ Sears / 85
DATE

LOCATION: county Franklin state MA MINING DISTRICT

quadrangle scale Greenfield 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: see below Longitude W:

Location Comments: Two locations: 1) 42° 36' 54" N, 72° 34' 09" W; 2) 42° 36' 49" N, 72° 34' 01" W. According to Emerson (1898, p. 505): A vein occurs "at the junction of diabase and upper sandstone on the west bank of the Connecticut River, 100 rods below the mouth of the Falls River. A second vein was reported "on the west side of the island at the falls."

MINERALS:

ECONOMIC: Major Chalcopyrite
Minor Malachite
Trace Siderite

GANGUE: Major Barite
Minor
Trace

HOST ROCK: Jurassic Turners Falls sandstone

GEOLOGIC DESCRIPTION: Ore occurs in brecciated sandstone, a calcareous red shaly rock. Hitchcock (1832, p. 61) reported that the several varieties of sandstone in the vicinity "appear to be considerably impregnated with copper." The veins pass from greenstone on the north (Deerfield diabase) into the Turners Falls sandstone to the south, and measure several feet in width, striking N-S and dipping 90°.

REFERENCES: Emerson, 1898; Gleba, 1978; Hitchcock, 1835; Hitchcock, 1823; Willard, 1952.

SITE NAME: Deerfield Barite Vein SITE NUMBER: 1-014

COMMODITY: major Pb minor Ba DEPOSIT TYPE: Vein

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ Sears / 85

DATE

LOCATION: county Franklin state MA MINING DISTRICT Connecticut Valley

Paleozoic rocks outside

quadrangle/scale Williamsburg 1:24,000 PHYSIOGRAPHIC AREA of Triassic basin

Latitude N: 42° 29' 03" Longitude W: 72° 39' 21"

Location Comments: 0.51 mi east of Whatley Glen Road

MINERALS:

ECONOMIC: Major Galena

Minor

Trace

GANGUE: Major Quartz

Minor Barite

Trace

HOST ROCK: Silurian Conway schist

GEOLOGIC DESCRIPTION: The vein strikes 18° NW.

REFERENCES: Emerson, 1898; Hitchcock, 1835; Hitchcock, 1823.

SITE NAME: Unnamed Lead-Barite Vein SITE NUMBER: 1-015

COMMODITY: major Pb minor Ba DEPOSIT TYPE: Vein

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ Sears / 85

DATE

LOCATION: county Franklin state MA MINING DISTRICT Connecticut Valley

Paleozoic rocks on W

quadrangle/scale Williamsburg 1:24,000 PHYSIOGRAPHIC AREA edge, Triassic basin

Latitude N: 42° 28' 10" Longitude W: 72° 39' 19"

Location Comments: 0.73 mi northwest of the North Street-Whately Glen Road intersection

MINERALS:

ECONOMIC: Major Galena

Minor

Trace

GANGUE: Major Quartz

Minor Barite

Trace

HOST ROCK: Silurian Conway schist

GEOLOGIC DESCRIPTION: The vein strikes N46° E

REFERENCES: Emerson, 1898; Hitchcock, 1835; Hitchcock, 1823.

SITE NAME: Mt. Esther-Conway Lead-Barite Vein SITE NUMBER: 1-016

COMMODITY: major Pb minor Ba DEPOSIT TYPE: Vein

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ Sears / 85

DATE

LOCATION: county Franklin state MA MINING DISTRICT Connecticut Valley

Paleozoic rocks on W

quadrangle/scale Williamsburg 1:24,000 PHYSIOGRAPHIC AREA edge, Triassic basin

Latitude N: 42° 27' 28" Longitude W: 72° 40' 06"

Location comments: The vein is located 0.3 mi northwest of Mt. Esther.

MINERALS:

ECONOMIC: Major Galena
Minor
Trace

GANGUE: Major Quartz
Minor Barite
Trace

HOST ROCK: Silurian Conway schist

GEOLOGIC DESCRIPTION: This is reported to be the other end of the vein from Whately that extends to the edge of Conway. The width of the vein is six to seven feet and it extends along the western margin of a high hill.

REFERENCES: Gleba, 1978; Hitchcock, 1835; Hitchcock, 1823.

SITE NAME: Leverett Lead Mine SITE NUMBER: 1-017

COMMODITY: major Pb minor Ba, Cu, Zn DEPOSIT TYPE: Vein

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Sears / 85

DATE

LOCATION: county Franklin state MA MINING DISTRICT Connecticut Valley

Paleozoic rocks on W

quadrangle/scale Mt. Toby 1:24,000 PHYSIOGRAPHIC AREA edge, Triassic basin

Latitude N: 42° 27' 28" Longitude W: 72° 31' 06"

HISTORY: Minor attempts to work veins failed in early 1800s. As of 1985, four trenches still accessible.

MINERALS:

ECONOMIC: Major Galena
Minor Chalcopyrite, sphalerite
Trace

GANGUE: Major Barite, quartz
Minor
Trace Azurite, malachite, pyromorphite, limonite

HOST ROCK: Devonian Williamsburg granite

GEOLOGIC DESCRIPTION: Two veins, both trending southwest-northeast, are shown by Emerson (USGS Folio 50, 1898) as "barite-galena veins" in Williamsburg granite, and are described itself as a "coarse muscovite-biotite granite with pegmatite and albitic veins." One lead vein to the southwest of Leverett, near the Franklin-Hampshire county line, is shown trending southwest through the Amherst schist.

REFERENCES: Emerson, 1898; Gleba, 1978; Hiller, 1974; Hitchcock, 1835; Jahns, 1951; Pearre, 1956.

1-018, 1-021, 1-022,

SITE NAME: Unnamed Lead-Barite Veins SITE NUMBER: 1-023

COMMODITY: major Pb minor Ba, Cu DEPOSIT TYPE: Vein

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ Sears / 85

DATE

LOCATION: county Franklin state MA MINING DISTRICT

Paleozoic rocks on edge

quadrangle/scale Mt. Toby 1:24,000 PHYSIOGRAPHIC AREA of Triassic basin

Latitude N: see below Longitude W:

Location Comments: 4 veins: 1) 42° 26' 29" N, 72° 31' 30" W; 0.49 mi NE of St. Rte. 63-Long Plain Rd. intersection. 2) 42° 26' 14" N, 72° 31' 28" W; 0.48 mi NE of St. Rte. 63-Plum Tree Rd. intersection. 3) 42° 26' 15" N, 72° 31' 32" W; on RR tracks, 0.13 mi S of Juggle Meadow Rd. 4) 42° 27' 26" N, 72° 31' 30" W; 0.44 mi NW of Long Hill Rd.-Depot Rd. intersection.

MINERALS:

ECONOMIC: Major Galena, chalcopyrite
Minor
Trace Sphalerite

GANGUE: Major Quartz
Minor Barite
Trace

HOST ROCK: Devonian Williamsburg granite and Silurian Conway schist

GEOLOGIC DESCRIPTION: The vein strikes 57° NE.

REFERENCES: Emerson, 1898.

SITE NAME: Whately-Williamsburg Lead Veins SITE NUMBER: 1-019, 1-020, 1-024

COMMODITY: major Pb minor DEPOSIT TYPE: Vein

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Sears / 85

DATE

LOCATION: county Franklin state MA MINING DISTRICT Connecticut Valley

Paleozoic rocks on W

quadrangle/scale Williamsburg 1:24,000 PHYSIOGRAPHIC AREA edge,Triassic basin

Latitude N: See below. Longitude W:

Location Comments: 3 localities: 1) 42° 27' 17" N, 72° 41' 01"W; 2) 42° 26' 58" N, 72° 40' 55" W; 3) 42° 25' 46" N, 72° 40' 15" W.

MINERALS:

ECONOMIC: Major Galena
Minor
Trace Manganese oxide, chalcopyrite, sphalerite, pyrite

GANGUE: Major Quartz
Minor
Trace

HOST ROCK: Silurian Conway schist and Devonian Williamsburg granite

GEOLOGIC DESCRIPTION: All three veins lie east of the contact of the Ordovician-Silurian schists with the Williamsburg granodiorites and associated pegmatites. Hitchcock (1823, p. 204) states that these veins strike north-south and traverse mica slate (schist) and granite. The veins contain disseminated galena in a matrix of radiated quartz. The north-south trend of the dikes, coupled with their mineral assemblages and proximity to Triassic diabase, leads to the conclusion that they are of Triassic age. Graphitic slickensides and crushed quartz, calcite, and fluorite in the northernmost vein were reported by Emerson (1898).

REFERENCES: Emerson, 1898; Gleba, 1978; Hitchcock, 1835; Hitchcock, 1823; Willard, 1956.

SITE NAME: Hatfield Lead Mine SITE NUMBER: 1-025

COMMODITY: major Pb minor Ba, Cu DEPOSIT TYPE: Vein

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Sears / 85 DATE

LOCATION: county Hampshire state MA MINING DISTRICT Connecticut Valley Paleozoic rocks on W

quadrangle/scale Greenfield 1:24,000 PHYSIOGRAPHIC AREA edge, Triassic basin

Latitude N: 42° 23' 18" Longitude W: 72° 38' 07"

PRODUCTION/ASSAYS: None known. Hitchcock (1835) referred to an "immense quantity" of barite occurring here.

MINERALS:

ECONOMIC: Major Galena
Minor Chalcopyrite, pyrite, sphalerite
Trace

GANGUE: Major Quartz, barite
Minor Calcite
Trace Fluorite, pyromorphite, cerussite, malachite, limonite, pyrolusite

PARAGENESIS: 1) calcite + fluorite; 2) quartz, then barite and galena; 3) calcite fills spaces between quartz crystals

HOST ROCK: Belchertown tonalite

GEOLOGIC DESCRIPTION: Vein occurs just west of contact between Sugarloaf Formation and Belchertown tonalite (Willard, 1956). Emerson (1898) reported that "the main filling of the vein was quartz, itself covered by barite, which so abuts against the quartz with its prismatic faces that the latter seems to be the newer mineral." The veins extend northwest-southeast for approximately 1700 feet, varying in thickness from one to seven feet, with the thickness increasing with depth.

REFERENCES: Emerson, 1898; Gleba, 1978; Hiller, 1975; Hitchcock, 1835; Willard, 1956.

SITE NAME: Unnamed Lead-Barite Veins SITE NUMBER: 1-026, 1-027

COMMODITY: major Pb minor Ba DEPOSIT TYPE: Vein

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Sears / 85 DATE

LOCATION: county Hampshire state MA MINING DISTRICT

quadrangle/scale Easthampton 1:24,000 PHYSIOGRAPHIC AREA

Latitude N: See below. Longitude W:

Location Comments: Two veins occur in this area: 1) 42° 17' 34" N, 72° 43' 50" W; approximately 0.27 mi east of the Easthampton Road-Main Road intersection; 2) 42° 21' 35" N, 72° 44' 48" W; in the drainage west of Marble Brook.

HISTORY: The mine was opened before the Revolutionary War and was worked for a second time in the 1820s. It was reopened again for a brief period during the Civil War.

PRODUCTION/ASSAYS: Argentiferous galena produced 12.5 oz. silver/ton of galena or ore.

MINERALS:

ECONOMIC: Major Galena
Minor Sphalerite
Trace Chalcopyrite, cerussite, anglesite, wulfenite, pyromorphite

GANGUE: Major Quartz
Minor Barite, fluorite
Trace Calcite

HOST ROCK: Devonian Willamsburg granite

REFERENCES: Emerson, 1898; Hitchcock, 1835; Hitchcock; 1823.

SITE NAME: Manhan Lead Mines (Loudville) SITE NUMBER: 1-028 through 1-032
COMMODITY: major Pb minor Ag, Zn, Cu, Ba DEPOSIT TYPE: Vein
OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Sears / 85
DATE
LOCATION: county Hampshire state MA MINING DISTRICT Connecticut Valley
quadrangle/scale Easthampton 1:24,000 PHYSIOGRAPHIC AREA W of Triassic basin
Latitude N: See below. Longitude W:
Location comments: Five localities: 1) 42° 17' 02" N, 72° 43' 55" W; 2) 42° 16' 54" N, 72° 43' 58" W; 3) 42° 16' 49" N, 72° 43' 58" W; 4) 42° 16' 36" N, 72° 44' 02" W; 5) 42° 16' 30" N, 72° 44' 00" W.
HISTORY: The mine was opened before the Revolutionary War and worked for a second time in the 1820s. It also reopened for a short time in the Civil War.
PRODUCTION/ASSAYS: Hitchcock (1822): the vein produced lead with 12.5 oz. Ag/ton of galena.
MINERALS:
ECONOMIC: Major Galena (some argentiferous)
Minor Sphalerite
Trace Chalcopyrite, cerussite, anglesite, wulfenite, pyromorphite
GANGUE: Major Quartz
Minor Barite, fluorite
Trace Calcite
PARAGENESIS: Quartz and galena contemporaneous; cerussite, anglesite, wulfenite and pyromorphite are supergene alteration minerals.
HOST ROCK: Devonian Williamsburg granite
REFERENCES: Emerson, 1898; Hitchcock, 1823.

SITE NAME: Southampton Lead Mine (Easthampton) SITE NUMBER: 1-033
COMMODITY: major Pb minor Ag, Zn, Cu, Ba DEPOSIT TYPE: Vein
OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Sears / 85
DATE
LOCATION: county Hampshire state MA MINING DISTRICT
Paleozoic rocks outside
quadrangle/scale Easthampton 1:24,000 PHYSIOGRAPHIC AREA of Triassic basin
Latitude N: 42° 15' 51" Longitude W: 72° 44' 18"
Location Comments: Approximately .28 mi northwest of the Cold Spring Road-Southampton Road intersection
HISTORY: Hitchcock (1832) reported that the vein had been opened 40 to 50 feet in depth, but severe water infiltration and the depressed price of lead forced the mine to close before this date. Mining was known only to have been progressing until 1832.
MINERALS:
ECONOMIC: Major Galena
Minor Sphalerite
Trace Chalcopyrite, wulfenite, anglesite
GANGUE: Major Quartz
Minor Barite, fluorite
Trace Calcite
HOST ROCK: Devonian Williamsburg granite
GEOLOGIC DESCRIPTION: A nearly vertical vein, six to eight feet wide, extends through the Williamsburg granite in a southwest-northeast trend. In it are developed coarse masses of ore, some up to a foot in diameter, consisting of a variety of minerals, including argentiferous galena.
REFERENCES: Gleba, 1978; Hitchcock, 1835; Hitchcock, 1823.

SITE NAME: New Mine Vein SITE NUMBER: 1-034

COMMODITY: major Pb minor DEPOSIT TYPE: vein

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ D'Agostino 2/71
DATE

LOCATION: county Hampshire state MA MINING DISTRICT

quadrangle/scale Woronoco 1:24,000 PHYSIOGRAPHIC AREA

Latitude N: 42° 12' 45" Longitude W: 72° 46' 50"

Location Comments: Located northwest of Russelville, Massachusetts. Unknown accuracy.

MINERALS:

ECONOMIC: Major Galena
Minor
Trace

GANGUE: Major Quartz
Minor
Trace

HOST ROCK: Granite

REFERENCES: Hitchcock 1827· Nash 1832.

SITE NAME: Woodland Dell Cemetery SITE NUMBER: 1-035
Fault zone/

COMMODITY: major Cu minor DEPOSIT TYPE: replacement

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ Robinson 8/85
DATE

LOCATION: county Hampden state MA MINING DISTRICT

quadrangle/scale Hampden 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 42° 07' 13" Longitude W: 72° 25' 31"

Location Comments: Exposures in outcrop in the Woodland Dell cemetery in Wilbraham.

MINERALS:

ECONOMIC: Major Chalcopyrite
Minor
Trace Malachite

GANGUE: Major Quartz
Minor
Trace

HOST ROCK: Mylonite and silicified protomylonite

GEOLOGIC DESCRIPTION: Chalcopyrite occurs as disseminated grains in late quartz veins that cut mylonite and silicified mylonite.

REFERENCES: Peper, 1977.

SITE NAME: Somers Sandpit SITE NUMBER: 2-036

Fault zone/

COMMODITY: major Cu minor DEPOSIT TYPE: replacement

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ Robinson 8/85

DATE

LOCATION: county Tolland state CT MINING DISTRICT

quadrangle/scale Hampden 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 42° 01' 43" Longitude W: 72° 26' 18"

Location Comments: Exposures along the east flank of a sandpit, 0.4 km south of the intersection of Hampden and Stafford Roads, in Somers.

MINERALS:

ECONOMIC: Major Chalcopyrite

Minor

Trace Malachite

GANGUE: Major Quartz

Minor

Trace

HOST ROCK: Mylonite and silicified protomylonite developed along the fault separating the Paleozoic metasediments to the east from the Jurassic sandstones and shales to the west.

GEOLOGIC DESCRIPTION: Chalcopyrite occurs as disseminated grains in late quartz veins that cut mylonite and silicified mylonite exposed beneath till on the east flank of the sand pit in Somers.

REFERENCES: Peper, 1977.

SITE NAME: K and F Suffield Brick Quarry SITE NUMBER: 2-037

Stratabound/

COMMODITY: major Cu minor DEPOSIT TYPE: replacement

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ Sears / 85

DATE

LOCATION: county Hartford state CT MINING DISTRICT

quadrangle/scale Broad Brook 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 41° 58' 53" Longitude W: 72° 36' 32"

Location Comments: 500' west of Connecticut River, 1200' east of intersection of Thrall Avenue and Rt. 159, 0.5 mi south of Rt. 190.

HISTORY: Copper known to exist here in 1737; area mined in 1800s for its "coal," carbonized wood fragments in the red shale units.

MINERALS:

ECONOMIC: Major Chalcocite, bornite

Minor

Trace

GANGUE: Major

Minor

Trace

HOST ROCK: Jurassic Portland Formation (red shales and sandstones)

GEOLOGIC DESCRIPTION: "Chalcocite and bornite replace and surround carbonized wood fragments in gray colored sand and siltstones at the south end of this quarry. The gray sediments fill large channels cut into thinly bedded shales and fine-grained sandstones of the Portland Formation. The redbeds are extensively mudcracked and contain abundant ripplemarks and raindrop impressions. The original cellular structure of the wood is well-preserved only where replaced by sulfides. This suggests that the copper mineralization here is very early and probably predates significant compaction." (Gray, 1982)

REFERENCES: Gray, 1982.

SITE NAME: Simsbury Mine SITE NUMBER: 2-038

stratabound/

COMMODITY: major Cu minor DEPOSIT TYPE: replacement

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Windolph 2/72

DATE

LOCATION: county Hartford state CT MINING DISTRICT

quadrangle/scale Windsor Locks 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 41° 58' 13" Longitude W: 72° 44' 39"

Location Comments: Schnabel map (1:24,000) locates mine by symbol

HISTORY: Small amounts of copper ore were produced during years 1707-1767 and 1830-1835 (Shepard, 1837).

MINERALS:

ECONOMIC: Major Chalcocite

Minor

Trace

GANGUE: Major

Minor

Trace

HOST ROCK: Sandstone of Shuttle Meadow Formation

REFERENCES: Schnabel, 1964; Shepard, 1837.

SITE NAME: Newgate Prison and Mine (also Simsbury Mines) SITE NUMBER: 2-039

COMMODITY: major Cu minor Ag, U DEPOSIT TYPE: Replacement/ stratabound

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ DATE Sears / 85

LOCATION: county Hartford state CT MINING DISTRICT

quadrangle/scale Windsor Locks 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 41° 57' 41" Longitude W: 72° 44' 44"

Location Comments: 1.1 mi NW of intersection of Newgate Road - State Route 20; at site of Newgate Prison

HISTORY: Copper was discovered in 1705, and mining started in 1707. Mining was unprofitable; operations ceased in 1741. In 1831 mines were re-opened by the Phoenix Mining Company, but again proved unprofitable, and closed in 1836. Two other attempts in 1855 and 1901 also proved failures.

PRODUCTION/ASSAYS: Copper averages less than 1% in most copper-bearing gray beds throughout the deposit, although the main deposit averages 2.5-10% copper and 10 oz. Ag/ton.

MINERALS:

ECONOMIC: Major Chalcopyrite, bornite
Minor Malachite, cuprite, chalcocite
Trace

GANGUE: Major
Minor
Trace

PARAGENESIS: Cu-sulfides precipitated in pores in sandstone early in diagenesis; later, the initial texture was modified when post-compaction solutions replaced the sulfides and precipitated chalcocite.

HOST ROCK: Gray sandstones in the uppermost part of the Triassic-Jurassic New Haven Formation (Perrin, 1976).

GEOLOGIC DESCRIPTION: Mineralization occurs in gray sandstones and black shales; interbedded red-colored sandstones and shales are barren. Mineralization occurs along an unconformity which lies just above the stratigraphic level of the Jurassic Talcott basalt flow. The Talcott basalt itself is truncated by the unconformity and is absent over much of mineralized area. The main deposit at Newgate Prison is stratigraphically lower and texturally distinct from the widespread disseminated mineralization more typical of the deposit. The relationship of the mineralization to the Talcott unconformity suggests saline Cu-bearing solutions percolated down into sediments from the surface during that erosional interval, and that high-grade mottled ores may be a product of a cooling basalt sheet (Holyoke?) which generated groundwater circulation that flushed new waters through a pre-mineralized zone.

REFERENCES: Gray, 1982; Perrin, 1976; Potisat, 1978; Schairer, 1931; Webster, 1978; Weed, 1911.

SITE NAME: Higley Copper Mine (Simsbury Mines) SITE NUMBER: 2-040

COMMODITY: major Cu minor DEPOSIT TYPE: Stratabound/ replacement

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Sears / 85 DATE

LOCATION: county Hartford state CT MINING DISTRICT

quadrangle/scale Windsor Locks 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 41° 56' 16" Longitude W: 72° 44' 25"

Location Comments: In East Granby, 0.8 mi SW of intersection of School St. and State Route 187; at northeast edge of Hatchett Hill. Large dump piles still visible.

HISTORY: Mined on a small scale in 1700s and again from 1831-1836. The first coins minted in America were made of Higley copper, from 1729 to 1739.

MINERALS:

ECONOMIC:	Major	Bornite, chalcopyrite
	Minor	Hematite
	Trace	Malachite, azurite
GANGUE:	Major	Calcite
	Minor	
	Trace	

PARAGENESIS: Filling of basalt amygdules with crystals of bornite, chalcopyrite, and calcite; later replacement of calcite by Fe-dolomite.

HOST ROCK: Talcott basalt

GEOLOGIC DESCRIPTION: "Minerals such as bornite, chalcopyrite, and carbonates fill hematite-stained fractures and vesicles in basalt near the amygdaloidal upper surface of the lower Talcott flow. The amygdaloid, especially where mineralized, is altered to ferroan dolomite. The amygdaloid is overlain by unmineralized altered basalt. A coarse breccia consisting of large angular fragments of basalt, and a white altered trachyte (with small mineralized fractures) set in a red sedimentary matrix lies on the eroded upper surface of the basalt. The breccia is probably either a mudflow or a talus deposit along an active fault. The mineralized trachyte blocks certainly point to a post-Talcott volcanic event closely associated with copper mineralization." (Gray, 1982.)

REFERENCES: Gray, 1982; Schairer, 1931; Weed, 1911.

SITE NAME: Trinity College Occurrence SITE NUMBER: 2-041

COMMODITY: major Cu minor Ba DEPOSIT TYPE: Vein

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ Robinson 8/85
DATE

LOCATION: county Hartford state CT MINING DISTRICT

quadrangle/scale Hartford North 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 41° 45' 04" Longitude W: 72° 44' 05"

Location Comments: On Trinity College campus

MINERALS:

ECONOMIC:	Major	Bornite
	Minor	
	Trace	Malachite, azurite
GANGUE:	Major	Quartz, barite
	Minor	
	Trace	

PARAGENESIS: 1) Pre-ore vein shearing and quartz veining of sediments; 2) deposition of ore vein containing quartz, quartz + bornite, barite + bornite. Malachite and azurite are supergene alteration of bornite.

HOST ROCK: Jurassic arkosic sandstone and red siltstone.

GEOLOGIC DESCRIPTION: The copper mineralization occurs in a quartz-barite vein cutting Jurassic arkosic sandstones and siltstones. The vein is possibly situated in a minor fault zone, indicated by the presence of pre-ore vein shearing and quartz veining in rock fragments in the ore vein. Rock fragments in the ore vein are bleached to a buff color and are somewhat silicified. Rock fragments in the vein are nucleation sites for quartz deposition.

REFERENCES: Ryan, Scott (Dept. of Geology, University of Connecticut), 1985, oral and written communication.

SITE NAME: Bristol Copper Mine SITE NUMBER: 2-042

COMMODITY: major Cu minor Ag DEPOSIT TYPE: Vein/Replacement

OCCURRENCE TYPE: X mine __quarry __ prospect __min. occurrence REPORTER/Sears / 85
DATE

LOCATION: county Bristol Corp. state CT MINING DISTRICT

quadrangle/scale Bristol 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 41° 43' 16" Longitude W: 72° 55' 26"

Location Comments: At 350' elevation near northern line of Bristol, about 4 mi from town center, at south end of Mine Mountain

HISTORY: Discovered in 1836; described by Shepard (1837) and Percival (1842).

PRODUCTION/ASSAYS: Prior to 1847, 125 tons of high-grade ore were produced. From 1847-1853 about 2200 tons of picked ore was produced, with an average copper content of 33%. The average grades ranged from 27% to 44.67% Cu in 1847-1855.

MINERALS:

ECONOMIC:	Major	Bornite, chalcocite
	Minor	Chalcopyrite
	Trace	Galena, sphalerite, pyrite
GANGUE:	Major	Quartz, calcite, barite
	Minor	Siderite
	Trace	Copper sulfides

PARAGENESIS: Bornite, chalcopyrite crystallized with quartz and calcite; chalcocite of hypogene origin replaced bornite and chalcopyrite. Bateman (p.166) states that these mineralizing emanated from the volcanic reservoir that supplied Jurassic basalt lavas.

HOST ROCK: Triassic red sandstone

GEOLOGIC DESCRIPTION: Mine occurs along the Bristol fault contact of red Triassic sandstone of the Farmington River valley and the crystalline rocks of the Western upland. According to Bateman (1923), two classes of ore bodies make up the deposit: a) small irregular veins in the broken material of the fault and in crystalline schists, and b) disseminated ore in certain gray sandstone beds adjacent to the fault, and to a lesser extent in schists. Vein ore occurred in bands of solid copper sulfide up to 8 inches thick which yielded sorted ore containing over 50% copper. A large vein called the Footwall Vein follows a fault parallel to the main fault, and this vein provided most of the copper mined around 1855. The disseminated ore occurs as copper sulfide veinlets, scattered grains, and small bunches and pockets. Where sulfides occur in seams they are usually associated with quartz, which is not the case with scattered sulfide grains. Veinlets appear to follow small cracks and fractures.

REFERENCES: Bateman, 1923; Januzzi, 1959; Schairer, 1931; Silliman and Whitney, 1855.

SITE NAME: Farmington vein SITE NUMBER: 2-043

COMMODITY: major Zn minor DEPOSIT TYPE: vein

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ D'Agostino 6/72

DATE

LOCATION: county Hartford state CT MINING DISTRICT

quadrangle/scale PHYSIOGRAPHIC AREA

Latitude N: 41° 42' 26" Longitude W: 72° 49' 48"

MINERALS:

ECONOMIC: Major

Minor Sphalerite

Trace

GANGUE: Major Quartz, calcite

Minor

Trace Prehnite

HOST ROCK: Sandstone and siltstone of the Shuttle Meadow Formation

GEOLOGIC DESCRIPTION: Veins in closely faulted sandstone and siltstone of the Shuttle Meadow Formation. Faults and veins trend north.

REFERENCES: Simpson, 1966.

SITE NAME: Basalt Quarry SITE NUMBER: 2-044

COMMODITY: major minor barite DEPOSIT TYPE: vein

OCCURRENCE TYPE: __mine X quarry __prospect __min. occurrence REPORTER/ D'Agostino 6/72

DATE

LOCATION: county Hartford state CT MINING DISTRICT

quadrangle/scale PHYSIOGRAPHIC AREA

Latitude N: 41° 40' 27" Longitude W: 72° 49' 25"

MINERALS:

ECONOMIC: Major

Minor

Trace

GANGUE: Major Calcite, quartz

Minor Barite, prehnite

Trace

HOST ROCK: Jurassic Holyoke basalt

REFERENCES: Simpson, 1966.

SITE NAME: Plainville Trap Quarry SITE NUMBER: 2-045

COMMODITY: major minor Cu, Zn DEPOSIT TYPE: Vein

OCCURRENCE TYPE: __mine X quarry __prospect __min. occurrence REPORTER/ D'Agostino 6/72
DATE

LOCATION: county Hartford state CT MINING DISTRICT

quadrangle/scale New Britain 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 41° 40' 17" Longitude W: 72° 49' 43"

Location Comments: Quarry development shown on topographic sheets

MINERALS:

ECONOMIC: Major

Minor Chalcopyrite, sphalerite

Trace

GANGUE: Major Calcite, quartz

Minor Prehnite, bitumen

Trace

HOST ROCK: Jurassic Holyoke basalt

REFERENCES: Simpson, 1966.

SITE NAME: Cooks Gap SITE NUMBER: 2-046

COMMODITY: major minor Zn, Cu DEPOSIT TYPE: Stratabound/replacement

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ Sears 8/85
DATE

LOCATION: county New Britain state CT MINING DISTRICT

quadrangle/scale New Britain 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 41° 40' 02" Longitude W: 72° 49' 46"

Location Comments: 100 feet south of Warren Street and 500 feet south of I-84W; off north slope of Bradley Mountain in Cooks Gap, 1500 feet west of the western boundary of New Britain Corporate Township.

MINERALS:

ECONOMIC: Major

Minor Pyrite, chalcopyrite, sphalerite

Trace

GANGUE: Major

Minor

Trace

HOST ROCK: Shuttle Meadow shales

GEOLOGIC DESCRIPTION: Mineralization occurs as a diagenetic replacement of early framboidal pyrite in black calcareous shale of the Shuttle Meadow Formation.

REFERENCES: Gray, 1982.

SITE NAME: Columbus Boulevard Occurrence SITE NUMBER: 2-047

COMMODITY: major Zn, Pb minor Cu, Ba DEPOSIT TYPE: Vein

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ Sears 8/85
DATE

LOCATION: county New Britain state CT MINING DISTRICT

quadrangle/scale New Britain 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 41° 39' 51" Longitude W: 72° 48' 05"

Location Comments: 450 feet south of West Main Street, 1500 feet east of Corbin Avenue overpass over I-84; between lanes of exit ramp onto West Main Street.

MINERALS:

ECONOMIC: Major Sphalerite, galena
Minor Chalcopyrite
Trace Chalcocite, covellite, tennantite

GANGUE: Major Quartz, dolomite, barite
Minor Calcite, bitumen
Trace

PARAGENESIS: 1) Vein filling of quartz, calcite, and ferroan dolomite in open spaces along active fault zone; movement continued, brecciating these minerals. 2) After faulting ceased, barite filled in center of vein and cemented carbonate-quartz fault breccia. 3) Sulfides and sulfates fill open spaces and replace carbonates in quartz-carbonate zones. Sphalerite is the first sulfide, followed by galena and chalcopyrite.

HOST ROCK: Jurassic Holyoke basalt

GEOLOGIC DESCRIPTION: "The vein here follows a small fault which cuts the chloritized upper part of the Holyoke basalt. A few centimeters of sediments containing pebble and sand-sized basalt fragments cap the top of the outcrop on the north side of the exit ramp. The same sediments also filled open fractures which extended down into the flow. Basalt bordering the vein is silicified and bleached to a light gray color... (which is) typical of the N45° W trending faults in the New Britain area irrespective of the presence of the carbonate-quartz-barite veins...The metals in (this) vein were probably derived from a black shale in the Shuttle Meadow Formation." (Gray, 1982, p. 206-207).

REFERENCES: Gray, 1982.

SITE NAME: Ellis Street Occurrence SITE NUMBER: 2-048

COMMODITY: major Cu minor Ba DEPOSIT TYPE: Vein/replacement

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ Sears 8/85
DATE

LOCATION: county New Britain state CT MINING DISTRICT

quadrangle/scale New Britain 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 41° 39' 28" Longitude W: 72° 46' 23"

Location Comments: At intersection of Ellis St. with SR 72, 2100 feet north of South St.

MINERALS:

ECONOMIC: Major
Minor Chalcopyrite
Trace Bornite

GANGUE: Major Barite
Minor Quartz, dolomite
Trace Calcite

PARAGENESIS: Quartz; chalcopyrite and barite; bornite; bornite replacing chalcopyrite and barite.

HOST ROCK: Jurassic Hampden basalt

GEOLOGIC DESCRIPTION: In vicinity of vein, basalt is thoroughly bleached and altered to a buff-colored rock composed of plagioclase, dolomite, and quartz.

REFERENCES: Gray, 1982.

SITE NAME: Vein Occurrence SITE NUMBER: 2-049

COMMODITY: major N/A minor DEPOSIT TYPE: vein

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ D'Agostino 6/72

DATE

LOCATION: county Hartford state CT MINING DISTRICT

quadrangle/scale New Britain 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 41° 37' 33" Longitude W: 72° 47' 05"

Location Comments: Simpson's map locates occurrence by letter symbol

MINERALS:

ECONOMIC: Major

Minor

Trace

GANGUE: Major Quartz, calcite

Minor (Amethyst), bitumen

Trace

HOST ROCK: Jurassic sandstone and siltstone of East Berlin Formation near contact with overlying Hamden basalt

GEOLOGIC DESCRIPTION: Vein in fault which trends northeast, in portion of basin characterized by closely spaced faults.

REFERENCES: Simpson, 1966.

SITE NAME: Mattabesset River Lead Mine SITE NUMBER: 2-050

COMMODITY: major Pb minor Zn, barite DEPOSIT TYPE: vein

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Windolph 2/72

DATE

LOCATION: county Hartford state CT MINING DISTRICT

quadrangle/scale Meriden 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 41° 37' 16" Longitude W: 72° 47' 30"

Location Comments: Workings in a ravine of the Mattabesset River adjacent to the first stream bridge 800 feet east of Chamberlain Highway Bridge (P.M. Hanshaw, pers. comm.).

HISTORY: Minor amounts of galena ore produced during years 1777, 1807 (Shepard, 1837).

MINERALS:

ECONOMIC: Major Galena

Minor Sphalerite, pyrite

Trace

GANGUE: Major Barite

Minor Calcite

Trace Bitumen

HOST ROCK: Jurassic Holyoke basalt; fault zone breccia includes sandstone and shale of the overlying East Berlin Formation.

GEOLOGIC DESCRIPTION: Vein located in a fault zone trending N 45° E and dipping nearly vertical. Occurs in area of Holyoke basalt characterized by closely spaced faults.

REFERENCES: Hanshaw, 1968; Percival, 1842; Shepard, 1837.

SITE NAME: Berlin Moore's Mill Mine SITE NUMBER: 2-051

COMMODITY: major barite minor _____ DEPOSIT TYPE: vein

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Windolph 2/72
DATE

LOCATION: county Hartford state CT MINING DISTRICT _____

quadrangle/scale Meriden 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 41° 37' 09" Longitude W: 72° 47' 40"

Location Comments: Mine site in bed of Mattabesset River, 200 feet west of Chamberlain Highway Bridge (P.M. Hanshaw, 1972, pers. comm.).

HISTORY: Unknown production, developed during early 1800s (Shepard, 1837).

MINERALS:

ECONOMIC: Major Barite
Minor
Trace

GANGUE: Major
Minor Calcite
Trace

HOST ROCK: Holyoke basalt; breccia in fault zone includes sandstone and siltstone of overlying East Berlin Formation (Jurassic).

GEOLOGIC DESCRIPTION: Workings located in stream bed. Vein of massive barite, with width of 6 inches (Shepard, 1837). Fault and vein strike N 40-45° E, dip nearly vertical. One thousand feet to the northeast along fault is the Mattabesset River lead mine, in area of closely spaced faulting in Holyoke basalt, East Berlin Formation, and Hampden basalt.

REFERENCES: Hanshaw, 1968; Percival, 1842; Shepard, 1837.

SITE NAME: Limestone Quarry SITE NUMBER: 2-052

COMMODITY: major _____ minor fluorite DEPOSIT TYPE: vein

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ D'Agostino 3/72
DATE

LOCATION: county Hartford state CT MINING DISTRICT _____

quadrangle/scale Meriden 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 41° 37' 09" Longitude W: 72° 49' 51"

Location Comments: Quarry located by symbol on Hanshaw map. Quarry site shown on topographic map as a depression with a diameter of about 50 feet.

MINERALS:

ECONOMIC: Major
Minor
Trace

GANGUE: Major Limestone (calcite)
Minor Fluorite (vein)
Trace

HOST ROCK: Limestone lens in Jurassic Shuttle Meadow Formation

GEOLOGIC DESCRIPTION: Limestone occurs as a lens in the Shuttle Meadow Formation (Jurassic). Fluorite occurs on joint surfaces.

REFERENCES: Hanshaw, 1968.

SITE NAME: Barite occurrence SITE NUMBER: 2-053

COMMODITY: major barite minor DEPOSIT TYPE: vein

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ Robinson 3/87

DATE

LOCATION: county Middlesex state CT MINING DISTRICT

quadrangle/scale Middletown 1:24,000 PHYSIOGRAPHIC AREA

Latitude N: 41° 36' 53" Longitude W: 72° 43' 34"

Location Comments: Lehmann's map does not locate occurrence

MINERALS:

ECONOMIC: Major Barite

Minor

Trace

GANGUE: Major

Minor Calcite, quartz, possibly ankerite

Trace

HOST ROCK: Hampden basalt

GEOLOGIC DESCRIPTION: Veins occur in faults and joints in the Hampden basalt.

REFERENCES: Lehmann, 1959.

SITE NAME: Middletown Lead and Silver Mine SITE NUMBER: 2-054

COMMODITY: major Pb minor Ag DEPOSIT TYPE: Vein

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Sears / 85

DATE

LOCATION: county Middletown state CT MINING DISTRICT

quadrangle/scale Middle Haddam 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 41° 33' 33" Longitude W: 72° 36' 41"

Location Comments: 500' south of Connecticut River, 200' north of River Road, at north end and base of Duck Hill at 30' elevation

HISTORY: Was worked in 1770s to furnish bullets for the American army; near end of nineteenth century attempts were made to mine silver, but were unsuccessful.

MINERALS:

ECONOMIC: Major Galena

Minor

Trace Silver

GANGUE: Major Quartz

Minor

Trace

GEOLOGIC DESCRIPTION: Occurs in veins associated with "crystalline" rocks of the region (Haddam gneiss?)

REFERENCES: Rice and Foye, 1927.

SITE NAME: Copper Prospect SITE NUMBER: 2-055

COMMODITY: major Cu minor DEPOSIT TYPE: hornfels
OCCURRENCE TYPE: __mine __quarry X prospect __min. occurrence REPORTER/ Robinson 3/87
DATE
LOCATION: county Middlesex state CT MINING DISTRICT
quadrangle/scale Middle Haddam 1:24,000 PHYSIOGRAPHIC AREA
Latitude N: 41° 31' 32" Longitude W: 72° 32' 05"
Location Comments: Prospect pit adjacent to dike. Stugard's map (1:24,000) locates prospects.
HOST ROCK: Diabase dike.
GEOLOGIC DESCRIPTION: Dolerite dike about 2 miles long and 125 feet wide trends N 25° E and dips 50-55° W. Prospect pit adjacent to dike; dike cuts metamorphic rocks.
REFERENCES: Stuyard 1958.

SITE NAME: Barite occurrence SITE NUMBER: 2-056
COMMODITY: major barite minor DEPOSIT TYPE: vein
OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ Robinson 3/87
DATE
LOCATION: county New Haven state CT MINING DISTRICT
quadrangle/scale Southington 1:24,000 PHYSIOGRAPHIC AREA
Latitude N: 41° 33' 05" Longitude W: 72° 53' 58"
Location Comments: Occurrence located on northern extreme of hill; additional prospect located on southern extreme of hill, 1200 feet to south; located on Fritts' map.
HOST ROCK: New Haven Arkose (Triassic) near the West Rock diabase dike
REFERENCES: Fritts, 1963b.

SITE NAME: New Haven mine SITE NUMBER: 2-057
COMMODITY: major barite minor Cu, Ag, Sr DEPOSIT TYPE: vein
OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Windolph 2/79
DATE
LOCATION: county New Haven state CT MINING DISTRICT
quadrangle/scale Southington 1:24,000 PHYSIOGRAPHIC AREA Triassic basin
Latitude N: 41° 33' 01" Longitude W: 72° 53' 42"
Location Comments: Mine shaft with prospect pit 100 feet northeast of shaft. Fritts (1963) map locates mine and prospects.
HISTORY: Small amount of barite ore production during the years 1864-1871 (Fritts, 1962).
PRODUCTION/ASSAYS: Dump grab sample assay gives 7 ppm Ag, >5000 ppm Ba, 3000 ppm Cu, and 2000 ppm Sr.
MINERALS:
ECONOMIC: Major Barite
Minor
Trace Chalcopyrite
GANGUE: Major
Minor
Trace
HOST ROCK: Triassic New Haven Arkose
GEOLOGIC DESCRIPTION: Sandstone strikes approximately N 70° E, dips 20° SE. Vein occurs in sandstone bordering intrusive West Rock Diabase.
REFERENCES: Fritts, 1962; Fritts, 1963b.

SITE NAME: Cheshire Barite Mines (3 localities) SITE NUMBER: 2-058, 2-059, 2-062

COMMODITY: major Ba minor DEPOSIT TYPE: Vein/Replacement

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Sears / 85
DATE

LOCATION: county New Haven state CT MINING DISTRICT Cheshire

quadrangle/scale Southington 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: see below Longitude W:

Location Comments: Three localities are given: 1) 41° 31' 11"N, 72° 54' 47"W; 2) 41° 32' 43"N, 72° 54' 18"; 3) 41° 32' 57"N, 72° 53' 41"W.

HISTORY: Numerous mining attempts were made by the Cheshire Barytes Company in the period 1864-1877, but none was ever wholly successful. Last owner of #2 mine was the Stamford Mining Company, but it also never had any profit from this deposit.

MINERALS:

ECONOMIC: Major Barite
Minor
Trace

GANGUE: Major
Minor
Trace

HOST ROCK: Triassic New Haven sandstone

REFERENCES: Fritts, 1962.

SITE NAME: Copper Prospect SITE NUMBER: 2-060

Fault zone/

COMMODITY: major Cu minor DEPOSIT TYPE: replacement

OCCURRENCE TYPE: __mine __quarry X prospect __min. occurrence REPORTER/ Windolph 2/72
DATE

LOCATION: county New Haven state CT MINING DISTRICT

quadrangle/scale Southampton 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 41° 32' 35" Longitude W: 72° 53' 03"

Location Comments: Fritts' map locates fault and copper prospect by symbol.

MINERALS:

ECONOMIC: Major
Minor Malachite (?)
Trace

GANGUE: Major
Minor
Trace

GEOLOGIC DESCRIPTION: Prospect along a fault which strikes N 50° E and, dips 75-80° S. West Rock diabase dike intrudes New Haven Arkose in vicinity.

REFERENCES: Fritts, 1963b.

SITE NAME: Booth and Hinman's Barite Mine SITE NUMBER: 2-061

COMMODITY: major Ba minor DEPOSIT TYPE: Vein

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Sears / 85
DATE

LOCATION: county New Haven state CT MINING DISTRICT Cheshire

quadrangle/scale Southington 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 41° 32' 07" Longitude W: 72° 54' 25"

Location Comments: 1300' southwest of intersection of Sandbank Road and Peck Lane, on left side of road heading south.

PRODUCTION/ASSAYS: very small amount, if any

MINERALS:

ECONOMIC: Major Barite
Minor
Trace

GANGUE: Major
Minor
Trace

HOST ROCK: Triassic New Haven sandstone

REFERENCES: Fritts, 1962.

SITE NAME: Copper Mine SITE NUMBER: 2-063

fault zone?

COMMODITY: major Cu minor DEPOSIT TYPE: replacement?

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Robinson 3/87
DATE

LOCATION: county New Haven state CT MINING DISTRICT

quadrangle/scale Meriden 1:24,000 PHYSIOGRAPHIC AREA

Latitude N: 41° 31' 11" Longitude W: 72° 49' 27"

Location Comments: Hanshaw's map locates mine in text; location not exact.

HOST ROCK: Arkosic conglomerate, sandstone, and siltstone in area of faults and basalt flows.

REFERENCES: Hanshaw, 1968.

SITE NAME: Jinny Hill Barite Mine SITE NUMBER: 2-064

COMMODITY: major Ba minor Cu, A DEPOSIT TYPE: Vein/Replacement

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Sears / 85
DATE

LOCATION: county New Haven state CT MINING DISTRICT Cheshire

quadrangle/scale Mount Carmel 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 41° 28' 49" Longitude W: 72° 53' 49"

Location Comments: 1.5 mi south-southeast of Cheshire

HISTORY: Discovered by Benjamin Silliman in 1813; came into production in 1838. Was last operated by the Stamford Mining Company in 1877.

PRODUCTION/ASSAYS: One sample shows 300 ppm Ag; 50 ppm B; 30 ppm Bi; >20,000 ppm Cu; 50 ppm Pb; 65,000 ppm Sr; 65,000 ppm Ba. Mined volume of barite reported as 1,660,000 cubic feet. Moderate quantities of low-grade barite ore are still present.

MINERALS:

ECONOMIC:	Major	Chalcopyrite, limonite, hematite, cuprite
	Minor	Chalcocite, bornite, malachite, chrysocolla
	Trace	Stilpnomelane, azurite
GANGUE:	Major	Barite, quartz, calcite
	Minor	
	Trace	

PARAGENESIS: Primary vein minerals include barite, quartz, calcite, chalcopyrite, bornite, and stilpnomelane. Limonite, hematite, cuprite, malachite, chrysocolla, chalcocite, and azurite were formed by supergene alteration during weathering.

HOST ROCK: New Haven arkose

GEOLOGIC DESCRIPTION: Barite mineralization in this area is confined mainly to joints and faults within a sequence of interbedded siltstone, arkose, and conglomerate, always within 1/2 mile of diabase intrusives. The most productive workings were driven or dug on composite zones of mineralized fault breccia and closely spaced barite veins, 1 inch to 1 foot wide. The Jinny Hill veins had strikes of N75° E to N85° E and dips of 85° N to 85° S. Of three parallel zones of mineralization, mining was most productive in the central zone, and it extended about 3/4 mile along strike. The central zone a brecciated vein, very likely a mineralized fault zone, composed mostly of pure white barite; rare red or yellow stainingw. Impurities within the ore proved to be malachite and copper sulfide minerals, and fist-sized sandstone fragments were numerous.

REFERENCES: Fritts, 1963; Fritts, 1962.

SITE NAME: Cross Rock Copper Mine SITE NUMBER: 2-065

COMMODITY: major Cu minor Ba DEPOSIT TYPE: Vein/ replacement

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Sears/85

DATE

LOCATION: county New Haven state CT MINING DISTRICT Cheshire

quadrangle/scale Mount Carmel 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 41° 28' 11" Longitude W: 72° 52' 39"

Location Comments: 500' south of Boulder Road, 1900' SE of Boulder Road-Half Moon Road intersection, at 270' elevation

PRODUCTION/ASSAYS: U.S. Geological Survey sample BCT-186 yields: Ba > 5000 ppm; Co 20 ppm; B 10 ppm; Sr 1500 ppm; Cu 150 ppm. Small amounts of high-grade ore were produced in 1900-1903.

MINERALS:

ECONOMIC: Major Chalcocite, malachite
Minor
Trace

GANGUE: Major Barite
Minor
Trace

HOST ROCK: Triassic New Haven arkose near contact with Jurassic diabase

GEOLOGIC DESCRIPTION: Ore occurs at contact of permeable sandstone with diabase dikes. Triassic Buttress diabase dike displaces Triassic West Rock sill, which itself intrudes New Haven arkose bed.

REFERENCES: Fritts, 1963.

SITE NAME: Gaylord Copper Prospect SITE NUMBER: 2-066

COMMODITY: major Cu minor Ba, Ag? DEPOSIT TYPE: Vein/Replacement

OCCURRENCE TYPE: __mine __quarry X prospect __min. occurrence REPORTER/ Sears/ 85

DATE

LOCATION: county New Haven state CT MINING DISTRICT Cheshire

quadrangle/scale Mount Carmel 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 41° 27' 43" Longitude W: 72° 53' 37"

Location Comments: located at 250' elevation, 600' north of Boulder Road, 1200' northeast of Half Moon Road-Boulder Road intersection

HISTORY: John Parker, Jr. of Wallingford was the first copper prospector in the area. In 1710, he dug two trenches about 50' in length, 15' deep, and 15' wide across the contact of diabase and sandstone. An unsuccessful attempt at mining was made in 1900-1903.

PRODUCTION/ASSAYS: Small amounts of high-grade ore

MINERALS:

ECONOMIC: Major Chalcocite, malachite
Minor
Trace

GANGUE: Major Barite
Minor
Trace

HOST ROCK: Triassic New Haven sandstone near contact with Jurassic dibase

GEOLOGIC DESCRIPTION: Ore occurs at contact of Buttress diabase dike with New Haven sandstone, itself intruded by the West Rock diabase sill. The New Haven formation is underlain by Silurian and Devonian Wepawaug schist of banded argillaceous, siliceous, and minor pyritic calcareous metasedimentary rocks, or older schists.

REFERENCES: Fritts, 1963; Fritts, 1962; Shepard, 1837.

SITE NAME: Tallman's Copper Mine SITE NUMBER: 2-067

COMMODITY: major Cu minor Ba, Ag, Pb DEPOSIT TYPE: Vein/Replacement

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Sears/85

DATE

LOCATION: county New Haven state CT MINING DISTRICT Cheshire

quadrangle/scale Mount Carmel 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 41° 26' 31" Longitude W: 72° 54' 02"

Location Comments: Numerous prospect pits occur along the eastern edge of the hill which has Butterworth Brook on its eastern edge; adit is at 370' elevation.

PRODUCTION/ASSAYS: U.S. Geological Survey sample BCT-188 assays yield: 3 ppm Ag; 500 ppm Ba; 500 ppm Cu; 10 ppm Pb. Small amounts of high-grade copper ore were produced between 1830 and 1835.

MINERALS:

ECONOMIC: Major Malachite, chalcocite
Minor
Trace Silver?

GANGUE: Major Barite
Minor
Trace

HOST ROCK: Triassic New Haven arkose near contact with Jurassic diabase

GEOLOGIC DESCRIPTION: Ore veins a few inches thick occur in the contact zone between Buttress diabase dike and Triassic sandstone beds. Buttress diabase occurs as a thin, nearly vertical dike which cuts across nearly horizontal Upper Triassic New Haven arkose formation, itself intruded by West Rock diabase sill.

REFERENCES: Fritts, 1963; Potisat, 1978; Shepard, 1837.

SITE NAME: Copper Prospect SITE NUMBER: 2-068

COMMODITY: major Cu minor Ba, Ag DEPOSIT TYPE: hornfels

OCCURRENCE TYPE: __mine __quarry X prospect __min. occurrence REPORTER/ Robinson 3/87

DATE

LOCATION: county New Haven state CT MINING DISTRICT

quadrangle/scale Mount Carmel 1:24,000 PHYSIOGRAPHIC AREA Hartford basin

Latitude N: 41° 26' 17" Longitude W: 72° 54' 03"

Location Comments: Prospect located at base of hill on strike with Tallman Copper Mine; Fritts' map (1:24,000) locates prospect by symbol.

HISTORY: Prospect pit only, probably dug either about 1712, 1835, or 1900

MINERALS:

ECONOMIC: Major Chalcocite
Minor Malachite
Trace

GANGUE: Major
Minor
Trace

GEOLOGIC DESCRIPTION: Mineralization in contact zone of Buttress diabase dike with sandstone beds. Dike trends N-S and probably dips nearly vertical. Sandstone strikes N 30° E, dips 15° SE.

REFERENCES: Fritts, 1963.

SITE NAME: Copper Valley Mine SITE NUMBER: 2-069

COMMODITY: major Cu minor Ag? DEPOSIT TYPE: Vein/Replacement

OCCURRENCE TYPE: __mine __quarry x prospect __min. occurrence REPORTER/ Sears/ 85

DATE

LOCATION: county New Haven state CT MINING DISTRICT Cheshire

quadrangle/scale Mount Carmel 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 41° 26' 15" Longitude W: 72° 54' 03"

Location Comments: 0.1 mi east of intersection of Butterworth Brook and Mill River, at base of hill on its south end· 0.5 mi east of the intersection of Conn. Rte. 10 and River Road.

HISTORY: May have been dug as early as 1712.

PRODUCTION/ASSAYS: Small amounts of low-grade copper ore

MINERALS:

ECONOMIC: Major Chalcocite, malachite

Minor

Trace Ag?

GANGUE: Major

Minor

Trace Barite

HOST ROCK: Triassic New Haven arkose near contact with Jurassic diabase

GEOLOGIC DESCRIPTION: In contact zone of diabase dike and sandstone beds, located at base of hill on strike with Tallman Copper mine. Dike trends north-south and probably dips nearly vertical; sandstone beds strike N30'E and dip 15'SE.

REFERENCES: Fritts, 1963; Fritts, 1962.

SITE NAME: Unnamed Copper Prospect SITE NUMBER: 2-070

COMMODITY: major Cu minor DEPOSIT TYPE: Hornfels/Replacement

OCCURRENCE TYPE: __mine __quarry X prospect __min. occurrence REPORTER/ Sears/85

DATE

LOCATION: county New Haven state CT MINING DISTRICT Woodbridge

quadrangle/scale Mount Carmel 1:24,00 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 41° 23' 03" Longitude W: 72° 51' 55"

Location Comments: On W side of Rock Ridge, at 400' elevation, 0.2 mi E of east shore, Lake Watrous

PRODUCTION/ASSAYS: Small amounts of high-grade ore produced

MINERALS:

ECONOMIC: Major Chalcocite, malachite

Minor

Trace

GANGUE: Major

Minor

Trace

HOST ROCK: Triassic New Haven arkose near contact with Jurassic diabase

GEOLOGIC DESCRIPTION: The mine is located at the contact of a sandstone bed with the bottom of an intruded sill of the West Rock diabase. Sandstone beds strike N75'E and dip 30'SE, and the sill is conformable with the sedimentary rock units.

REFERENCES: Fritts, 1963; Fritts, 1962.

SITE NAME: Silver prospect SITE NUMBER: 2-071

Sediment-host

COMMODITY: major Ag minor DEPOSIT TYPE: stratabound

OCCURRENCE TYPE: __mine __quarry X prospect __min. occurrence REPORTER/ Robinson 3/87

DATE

LOCATION: county New Haven state CT MINING DISTRICT

quadrangle/scale Branford 1:24,000 PHYSIOGRAPHIC AREA

Latitude N: 41° 18' 02" Longitude W: 72° 50' 58"

Location Comments: Hovey's map (1:45,000) located prospect by letter

HISTORY: Prospected for silver about 1860. Trench about 250 feet long into hillside of trap rock. Trench in shale, ends against fine-grained sandstone. Site near contact with basalt.

HOST ROCK: Shale of the Shuttle Meadow Formation.

REFERENCES: Hovey, 1889.

SITE NAME: Totowa Mine SITE NUMBER: 3-072

COMMODITY: major Cu minor DEPOSIT TYPE: stratabound/vein

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Sally Whitlow

DATE 11/83

LOCATION: county Passaic state New Jersey MINING DISTRICT

quadrangle/scale Patterson 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 54' 00" Longitude W: 74° 13' 12"

MINERALS:

ECONOMIC: Major

Minor Chalcopyrite, malachite

Trace

GANGUE: Major

Minor

Trace

HOST ROCK: Jurassic basalt (brecciated)

REFERENCES: Woodward 1944

SITE NAME: Glen Ridge Mine (Glenridge) SITE NUMBER: 3-073

Stratabound/

COMMODITY: major Cu minor DEPOSIT TYPE: replacement

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Sears / 85

DATE

LOCATION: county Essex state NJ MINING DISTRICT

quadrangle/scale Orange 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 47' 58" Longitude W: 74° 12' 09"

Location Comments: Along Bloomfield Avenue and Toneys Brook, near north end of Hillside Avenue.

HISTORY: Was worked as early as 1746, but was never very active. In the 1860s several hundred tons of ore were removed by the Glen Ridge Quarry and Mining Company, but this was a short-lived activitp. The shaft entrance colla sed and became inaccessible in 1922.

PRODUCTION/ASSAYS: Ore, 1880s: 79% copper, minor silver (sample of nearly pure chalcocite; not representative of average grade ore).

MINERALS:

ECONOMIC: Major Chalcocite

Minor Chrysocolla

Trace

GANGUE: Major

Minor

Trace

HOST ROCK: Triassic sandstone

GEOLOGIC DESCRIPTION: Although no igneous rock is found here, and there are no indications of faults, this deposit seems to be identical to other deposits of the same age and type in the region - see Brigewater Mine for details. Gray sandstone is found with disseminated chalcocite and green with chrysocolla, and these minerals also largely replace occasional bituminous plant remains.

REFERENCES: Lewis, 1907b; Newhouse, 1933; Woodward, 1944.

SITE NAME: Wigwam Brook Mine SITE NUMBER: 3-074

COMMODITY: major Cu minor DEPOSIT TYPE: Stratabound/ replacement

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/DATE Sears / 85

LOCATION: county Essex state NJ MINING DISTRICT

quadrangle/scale Orange 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 46' 52" Longitude W: 74° 13' 49"

Location Comments: At foot of Mt. Vernon Avenue, 0.7 mi W of Dod Mine

HISTORY: A shaft was already open in the mid-1800s; street grading covered it in 1870.

GEOLOGIC DESCRIPTION: See Glen Ridge (073) and Schuyler (076) mines for descriptions.

REFERENCES: Woodward, 1944.

SITE NAME: Dod Mine SITE NUMBER: 3-075

COMMODITY: major Cu minor DEPOSIT TYPE: Stratabound/ replacement

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/DATE Sears / 85

LOCATION: county Essex state NJ MINING DISTRICT

quadrangle/scale Orange 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 46' 51" Longitude W: 74° 13' 00"

Location Comments: in East Orange, near Brighton Avenue station of the Erie Railroad

HISTORY: Mineralization was discovered in 1720, and mining activity began around 1720, likely continuing on the property until 1796. The workings are on strike with the nearby Glen Ridge Mine.

MINERALS:

ECONOMIC: Major Chalcocite
Minor Chrysocolla
Trace

GANGUE: Major
Minor
Trace

HOST ROCK: Triassic Newark sandstone

GEOLOGIC DESCRIPTION: Ore occurs as disseminated chalcocite in sandstone, and as veins and fracture fillings; chalcocite is extensively altered to chrysocolla.

REFERENCES: Woodward, 1944.

SITE NAME: Schuyler Mine (Arlington, Belleville, Victoria) SITE NUMBER: 3-076

Stratabound/

COMMODITY: major Cu minor Ag DEPOSIT TYPE: replacement

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Robinson / 84

DATE

LOCATION: county Bergen state NJ MINING DISTRICT

quadrangle/scale Orange 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 46' 43" Longitude W: 74° 07' 45"

Location Comments: Mine lies beneath Schuyler Avenue at west edge of Hackensack Meadows. Main workings lie 150' east of Schuyler Avenue between intersection with Morton Place and Avon Place. Mine entrance is in quarry, east of termination of Avon Place.

HISTORY: Discovery occurred in 1712 or 1713 in a plowed field. Mine was worked 1719-1773, with production stopped during American Revolution. Mine re-opened 1794 and was worked intermittently until 1892, although there was very little production after the Civil War.

PRODUCTION/ASSAYS: Estimated production >5000 tons of ore, up to 100,000 tons of ore + rock. Ore reported to yield 4.4 oz. Ag/ton. Average ore grades 2.5% Cu. Granberry (1906) estimated $5x10^6$ tons of ore with 2% Cu remained, while Cornwall (1943) estimated 11,000 tons with a grade of 1.25% Cu.

MINERALS:

ECONOMIC:	Major	Chalcocite, chrysocolla
	Minor	Malachite, azurite
	Trace	Cuprite, native copper, covellite, brochantite, conichalcite, bornite
GANGUE:	Major	Calcite
	Minor	
	Trace	Selenite

PARAGENESIS: Chalcocite is primary ore mineral; other copper minerals occur as supergene alterations.

HOST ROCK: Triassic Brunswick Formation

GEOLOGIC DESCRIPTION: Mineralization occurs as disseminated chalcocite in white sandstone. Intense mineralization occurs as irregular nodules, pods, or zones a few inches thick within the sandstone. Joe Smoot (pers. comm.) reports root casts in the sandstone at this horizon and a red siltstone layer a few tens of feet above the mineralized sandstone bed has casts of saline minerals (gypsum?).

A 5-20 foot thick diabase sill is reported to underlie the brown to gray sandstones of the Brunswick Formation, and may have acted as a barrier to fluid flow.

REFERENCES: Cornwall, 1943; Lee, 1937; Newhouse, 1933; Woodward, 1944.

SITE NAME: Laurel Hill SITE NUMBER: 3-077

COMMODITY: major Fe minor DEPOSIT TYPE: vein/replacement

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ Robinson 8/85
DATE

LOCATION: county Hudson state NJ MINING DISTRICT

quadrangle/scale Weehawken 1:24,000 PHYSIOGRAPHIC AREA Newark Triassic Basin

Latitude N: 40° 45' 32" Longitude W: 74° 05' 11"

Location Comments: Occurrence is located on east side of Laurel Hill on quarry property of the Callaghan Traprock Corporation.

MINERALS:

ECONOMIC: Major Magnetite
Minor Pyrite
Trace Chalcopyrite

GANGUE: Major
Minor Quartz, chlorite, calcite
Trace Sphene, apatite

HOST ROCK: Jurassic diabase body at Laurel Hill intruding into Triassic Brunswick Formation

GEOLOGIC DESCRIPTION: The vein cuts medium-grained diabase and typically contains a 2-cm-wide zone of euhedral to subhedral magnetite with minor interstitial quartz, chlorite, and calcite surrounded by a 2- to 4-cm wide envelope of altered diabase. The alteration envelope contains altered plagioclase, chlorite, calcite, and magnetite formed from the nearly complete destruction of pyroxene and ilmenite in the diabase.

REFERENCES: Puffer and Peters, 1974.

SITE NAME: Hoffman Prospect (also Hoffman Mine) SITE NUMBER: 3-078

COMMODITY: major Cu minor DEPOSIT TYPE: Stratabound/ replacement

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Sears / 85
DATE

LOCATION: county Somerset state NJ MINING DISTRICT

quadrangle/scale Gladstone 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 38' 31" Longitude W: 74° 37' 45"

Location Comments: Approximately 0.75 mi SE of Pluckemin, on west flank of First Watchung Mountain

HISTORY: Prospected in early 1800s; mining was reported as being active in 1812 and also during 1860-1868; has been inactive since.

PRODUCTION/ASSAYS: Woodward (1944, p. 95): "Several tons of ore were sent to Bergen Point."

MINERALS:

ECONOMIC: Major Native copper, chalcocite
Minor
Trace Malachite

GANGUE: Major
Minor
Trace

HOST ROCK: Base of First Watchung basalt

GEOLOGIC DESCRIPTION: The ore occurs on top of a basalt unit. Ore is said to carry native copper, and an old dump (as of 1907) showed chalcocite in sandstone and brecciated basalt, with smaller quantities of malachite.

REFERENCES: Lewis, 1907b; Newhouse, 1933; Woodward, 1944.

SITE NAME: Stony Brook Mines SITE NUMBER: 3-079

Stratabound/

COMMODITY: major Cu minor DEPOSIT TYPE: replacement

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/DATE Sears / 85

LOCATION: county Somerset state NJ MINING DISTRICT

quadrangle/scale Chatham 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 37' 57" Longitude W: 74° 26' 38"

Location Comments: One mile west of Plainfield, seven miles northeast of Chimney Rock

HISTORY: Exploration was made in 1800s; operation known to have been active in 1866.

PRODUCTION/ASSAYS: Sorted ore averages 3.9% copper (Woodward, 1944, p. 94).

MINERALS:

ECONOMIC: Major Malachite, azurite
Minor
Trace

GANGUE: Major
Minor
Trace

HOST ROCK: Triassic Brunswick Formation, base of First Watchung basalt

GEOLOGIC DESCRIPTION: Ore occurs in contact-metamorphosed shales of the Brunswick Formation. See Bridgewater (080) summary for description.

REFERENCES: Woodward 1944.

SITE NAME: Bridgewater Mine (Somerville, American) SITE NUMBER: 3-080

COMMODITY: major Cu minor DEPOSIT TYPE: Stratabound/ replacement

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/DATE: Sears / 85

LOCATION: county Somerset state NJ MINING DISTRICT

quadrangle/scale Bound Brook 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 36' 53" Longitude W: 74° 36' 56"

Location Comments: On the southwest flank of the First Watchung Mountain, about 3 mi north of Somerville. Mine entrance (no longer accessible) is at about 370' elevation.

HISTORY: A mass of native copper weighing 128 pounds was found in the vicinity of the mine in 1754, sparking considerable interest in the area. Mining took place sporadically (1760s, 1821-1830, 1881-1883, 1898-1905, 1907-1908), and was never profitable.

PRODUCTION/ASSAYS: Weed (1903): Average of 0.025% Cu in bedrock (basalt); 1-8% Cu in orebed, up to 6.94 oz. Ag/ton in one sample.

MINERALS:

ECONOMIC:	Major	Native copper
	Minor	Cuprite, chrysocolla, malachite
	Trace	Chalcocite, chalcopyrite, hydrocuprite, bornite, minor native silver
GANGUE:	Major	Calcite, quartz, manganocalcite
	Minor	Prehnite, zeolites
	Trace	

PARAGENESIS: Late-stage fluids associated with amygdaloidal Watchung basalt are responsible for diverse copper-bearing mineral assemblages. Calcite in amygdules is commonly replaced by pseudomorphs of native copper. Chalcocite is usually restricted to joints and other fractures. Cuprite at shallow depths is often crusted with malachite and/or chrysocolla, while prehnite and chalcopyrite occur in minute cavities near the basalt margin. Silver occasionally occurs as minute linings or blotches on cuprite (Darton, 1885).

HOST ROCK: Triassic shales and sandstones of the Newark series; base of First Watchung basalt flow

GEOLOGIC DESCRIPTION: The copper-bearing minerals commonly occur below the base of a large basalt flow in a bed of highly altered shale hardened along the igneous contact. The basalt has amygdaloidal upper and lower surfaces, yet it is only near the lower surface contact, or within the lower-surface amygdules, that the copper is found. The trap rock shows considerable alteration at the base and for several inches upward and has been partially chloritized to a greenish color. The shales are reduced from red to a purplish "hornfels," and these beds typically contain the ore. Joints and other fractures are common, and native copper + chalcocite + calcite commonly occur in them.

REFERENCES: Darton, 1885; Hayes, 1949; Newhouse, 1933; Weed, 1903; Woodward, 1944.

SITE NAME: Chimney Rock Mines SITE NUMBER: 3-081

COMMODITY: major Cu minor DEPOSIT TYPE: Stratabound/ replacement

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ DATE Sears / 85

LOCATION: county Somerset state NJ MINING DISTRICT

quadrangle/scale Bound Brook 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 34' 50" Longitude W: 74° 33' 30"

HISTORY: Was worked in mid-1700s on small scale; was worked until 1866 at latest.

PRODUCTION/ASSAYS: 25-50 tons of ore were produced between 1865 and 1866.

MINERALS:

ECONOMIC:	Major	Native copper, chalcocite
	Minor	Chrysocolla
	Trace	Malachite
GANGUE:	Major	
	Minor	
	Trace	

HOST ROCK: Triassic Brunswick shale, base of First Watchung basalt

GEOLOGIC DESCRIPTION: The orebed, which lies within altered shale below a contact with amygdaloidal basalt, is slightly indurated and has a purple color. Some native copper, containing rare particles of silver, was reported. The geology is reported as being identical to that of the Bridgewater Mine (see summary in this report).

REFERENCES: Lewis, 1907b; Woodward, 1944.

SITE NAME: Menlo Park Mine (Edison) SITE NUMBER: 3-082

COMMODITY: major Cu minor DEPOSIT TYPE: Vein/replacement

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Sears / 85
DATE

LOCATION: county Middlesex state NJ MINING DISTRICT

quadrangle/scale Perth Amboy 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 33' 52" Longitude W: 74° 20' 01"

Location Comments: 0.5 mi north of Menlo Park (now Edison), Raritan Township; 7 mi east of New Brunswick; 11 mi due east of Bound Brook, at 70' elevation.

HISTORY: Copper minerals were discovered in 1784; exploration began soon after, but stopped because of poor prospects. The workings were re-activated in 1812, 1827, 1880s, 1900-1903; no activity since 1903.

MINERALS:

ECONOMIC:	Major	Native copper
	Minor	Chrysocolla
	Trace	Chalcopyrite, magnetite
GANGUE:	Major	
	Minor	
	Trace	

PARAGENESIS: Upward-moving copper-bearing solutions moved along a fault, becoming oxidized by ferric iron in shales and depositing copper; chrysocolla is a supergene effect of secondary meteoric waters. (Woodward, 1944)

HOST ROCK: Triassic Brunswick shales

GEOLOGIC DESCRIPTION: A north-south trending fault, with movement parallel to bedding (striking N-S, dipping 12° NW), occurs at the main mine. It terminates abruptly against an undisturbed conformable shale unit. A narrow zone of breccia, 6 inches to 2 feet wide, follows the plane of displacement, and on either side of it the bedrock is altered to soft dark-gray shale. Locally the shale is spotted or otherwise mottled by white bleached patches. The ore minerals are confined to the vicinity of the fault and fault-breccia. Native copper occurs as thin sheets and films in joint cracks of the darkened shale, and covers slickensided surfaces on breccia and wall rocks. The secondary alteration product, chrysocolla, is developed along joints and fissures, although it does permeate some of the sandy sediments. Bituminous plant remains are replaced by copper where they are found.

REFERENCES: Lewis, 1907b; Newhouse, 1933; Woodward, 1944.

SITE NAME: New Brunswick Mines (French, Raritan) SITE NUMBER: 3-083

COMMODITY: major Cu minor Ag DEPOSIT TYPE: Stratabound/ replacement

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Sears / 85 DATE

LOCATION: county Middlesex state NJ MINING DISTRICT

quadrangle/scale Plainfield 1:24 000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 30' 03" Longitude W: 74° 26' 58"

HISTORY: In 1748-1750, lumps of native copper weighing 5-30 pounds, and totaling about 200 pounds, were plowed from a field here. The deposit was worked from 1751 until before the American Revolution, when flooding prevented any further progress impossible.

PRODUCTION/ASSAYS: Woodward, 1944, p.101: "several tons of pure copper" were produced.

MINERALS:

ECONOMIC: Major Native copper
Minor Malachite, chrysocolla
Trace Azurite

GANGUE: Major
Minor
Trace

HOST ROCK: Triassic Brunswick shales

GEOLOGIC DESCRIPTION: Sheets of copper, some "two pennies" thick and 3 feet square, were found on joints of red shale. Cuprite, malachite, chrysocolla, and azurite sometimes encrust sheets or entirely replace them. No trap rock is known to occur here, although small dikes are known to cut the shales in the vicinity. Small flakes of silver have been reported from this mine.

REFERENCES: Woodward, 1944.

SITE NAME: Flemington Mines (Neshanic Mine) SITE NUMBER: 3-084

COMMODITY: major Cu minor DEPOSIT TYPE: Stratabound/ replacement

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Sears / 85 DATE

LOCATION: county Hunterdon state NJ MINING DISTRICT

quadrangle/scale Flemington 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 30' 22" Longitude W: 74° 52' 11"

Location Comments: In the southwest part of Flemington; several different mines occur in this area.

HISTORY: First operated in pre-Revolutionary days; operated again in 1840-1844 and 1848-1861.

PRODUCTION/ASSAYS: Cook (1868) reported "dressed ore" ran 6.7% Cu; sandstone ran 0.5% Cu.

MINERALS:

ECONOMIC: Major Chalcocite
Minor Chalcopyrite, bornite
Trace

GANGUE: Major Calcite
Minor
Trace

HOST ROCK: Triassic Brunswick shales

GEOLOGIC DESCRIPTION: See Bridgewater (080) Mine; the ore body is richest in a brecciated sandstone along a northwest-trending fault.

REFERENCES: Lewis, 1907; Newhouse, 1933; Woodward, 1944.

SITE NAME: Monmouth Junction SITE NUMBER: 3-085

COMMODITY: major Cu minor DEPOSIT TYPE: hornfels/vein

OCCURRENCE TYPE: __mine __quarry X prospect __min. occurrence REPORTER/ Julian Master

DATE 08/85

LOCATION: county Somerset state New Jersey MINING DISTRICT

quadrangle/scale Monmouth Junction 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 26' 26" Longitude W: 74° 34' 52"

Location Comments: Located 0.1 mile west of Tenmile Run Creek.

HISTORY: Trench prospect approximately 20 ft long and 10 ft wide.

HOST ROCK: Triassic sandstone of the Brunswick Formation

REFERENCES: Field check, New Jersey Geological Survey, 1985

SITE NAME: Griggstown Mine (Franklin Mine) SITE NUMBER: 3-086

Stratabound/

COMMODITY: major Cu minor Ag, Au DEPOSIT TYPE: replacement

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Sears / 85

DATE

LOCATION: county Somerset state NJ MINING DISTRICT

quadrangle/scale Monmouth Junction 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 25' 34" Longitude W: 74° 36' 45"

Location Comments: 1.0 mi S of Griggstown, 0.5 mi E of Millstone River and the Delaware-Raritan Canal, at 200' elevation.

HISTORY: Intermittent attempts to mine were made in 1765, 1800s, 1905-1906, 1916; never a profitable venture.

PRODUCTION/ASSAYS: New Jersey Geological Survey assay of rich ore: 0.01 oz. Au/ton, 0.03 oz. Ag/ton.

MINERALS:

ECONOMIC:	Major	Chalcocite
	Minor	Chalcopyrite, chrysocolla
	Trace	Malachite, cuprite, azurite, native copper
GANGUE:	Major	
	Minor	Tourmaline, epidote, chlorite, feldspar
	Trace	Magnetite, hematite

PARAGENESIS: Late-stage magmatic fluids deposited chalcocite, chalcopyrite; later, heated meteoric waters circulated through system to deposit supergene minerals (malachite, chrysocolla, azurite).

HOST ROCK: Triassic Brunswick shales

GEOLOGIC DESCRIPTION: Identical to Schuyler Mine (see summary in this report).

REFERENCES: Lewis, 1907; Newhouse, 1933; Woodward, 1944.

SITE NAME: Hopewell Barite Mine SITE NUMBER: 3-087

COMMODITY: major Ba minor DEPOSIT TYPE: Vein

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Sears / 85

DATE

LOCATION: county Mercer state NJ MINING DISTRICT

quadrangle/scale Pennington PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 22' 19" Longitude W: 74° 47' 13"

Location Comments: On the banks of Stony Brook, about 1 mi from the village of Hopewell; several locations are noted, as there were apparently numerous adits.

HISTORY: The mine was operated during the 1800s, and was closed prior to 1896.

PRODUCTION/ASSAYS: Nearly 2,000 tons of barite were mined before 1868 (Cook, p. 709).

MINERALS:

ECONOMIC: Major Barite
Minor
Trace

GANGUE: Major
Minor
Trace

HOST ROCK: Triassic Palisades diabase

GEOLOGIC DESCRIPTION: The barite occurs in a "layer," from 4 to 6 feet thick, thinning to a foot in some places. The barite is massive and very pure. Dombroski (1980) reports that Kummel's field notes (1896) describe the occurence as "veins in a very much decomposed and broken trap rock... some of the freshest pieses (sic) resemble a friction breccia and the presence of the barite in the veins indicates that the rock had been much fractured."

REFERENCES: Cook, 1868; Dombroski, 1980.

SITE NAME: Woosamonsa prospect SITE NUMBER: 3-088

COMMODITY: major Cu minor DEPOSIT TYPE: hornfels/replacement

OCCURRENCE TYPE: __mine __quarry X prospect __min. occurrence REPORTER/ Julian Master

DATE 08/85

LOCATION: county Mercer state NJ MINING DISTRICT

quadrangle/scale Pennington (1:24,000) PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 20' 17" Longitude W: 74° 50' 10"

MINERALS:

ECONOMIC: Major Chalcocite
Minor Chalcopyrite, chrysocolla
Trace

GANGUE: Major
Minor
Trace

HOST ROCK: Triassic siltstone of the Brunswick Formation adjacent to Jurassic diabase

REFERENCES: Kummel, H.B., 1901; Woodward, H.P.; Lewis, J.V., 1907b

SITE NAME: New Hope SITE NUMBER: 4-089
COMMODITY: major Cu minor DEPOSIT TYPE: Hornfels?
OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ Sears 7/84
DATE
LOCATION: county Bucks state PA MINING DISTRICT
Stockton/
quadrangle/scale Lambertville 1:24,000 PHYSIOGRAPHIC AREA Triassic basin
Latitude N: 40° 22' 46" Longitude W: 74° 57' 48"
REFERENCES: Rose, 1970; Wherry, 1908.

SITE NAME: Ingham Spring SITE NUMBER: 4-090
COMMODITY: major Cu, Ba minor DEPOSIT TYPE: Vein
OCCURRENCE TYPE: __mine __quarry X prospect __min. occurrence REPORTER/ Sears 7/84
DATE
LOCATION: county Bucks state PA MINING DISTRICT
quadrangle/scale Lambertville 1:24,000 PHYSIOGRAPHIC AREA Triassic basin
Latitude N: 40° 21' 50" Longitude W: 74° 59' 33"
REFERENCES: Rose, 1970; Wherry, 1908; Willard and others, 1959.

SITE NAME: Solebury Mine SITE NUMBER: 4-091
COMMODITY: major Cu minor DEPOSIT TYPE: Vein
OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Sears 6/84
DATE
LOCATION: county Bucks state PA MINING DISTRICT
quadrangle/scale Lambertville 1:24,000 PHYSIOGRAPHIC AREA Triassic basin
Latitude N: 40° 20' 11" Longitude W: 74° 57' 14"
Location Comments: One mi ENE of Buckmanville at the west end of Bowman Hill.
HISTORY: First worked by the Dutch in 1650, and was thus one of the first mining enterprises in U.S. No reference to more recent work is known.
PRODUCTION/ASSAYS: Small amount of Cu produced by the Dutch.
MINERALS:
ECONOMIC: Major Bornite
Minor Chrysocolla?
Trace
GANGUE: Major
Minor Barite
Trace
HOST ROCK: Metamorphosed Triassic shale
GEOLOGIC DESCRIPTION: Near same fault which runs through Buckmanville barite mine (092).
REFERENCES: Rose, 1970; Stone, 1939; Wherry, 1908; Willard and others, 1959.

SITE NAME: Buckmanville Mine SITE NUMBER: 4-092

COMMODITY: major Ba minor Cu DEPOSIT TYPE: Vein

OCCURRENCE TYPE: x mine __quarry __prospect __min. occurrence REPORTER/ Sears 7/84

DATE

LOCATION: county Bucks state PA MINING DISTRICT

quadrangle/scale Lambertville 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 19' 35" Longitude W: 74° 58' 52"

HISTORY: Noted in geologic reports of the early 1900's. Fourteen pits up to 25 ft. deep expose the mineralized rock.

MINERALS:

ECONOMIC: Major Barite
Minor Chalcopyrite, magnetite, pyrite
Trace Malachite, hematite, limonite

GANGUE: Major Quartz, chalcedony
Minor Sericite, orthoclase, plagioclase
Trace

HOST ROCK: Triassic red sandstone

GEOLOGIC DESCRIPTION: The barite occurs in a breccia zone near a large fault, which trends ENE and cuts diabase farther east. The minerals listed above occur mainly between breccia fragments. The pits in combination with float outline an area of about 30 acres of barite occurrences. Some breccia contains 50-75% barite.

REFERENCES: Rose, 1970; Stone, 1939; Wherry, 1908; Willard and others, 1959.

SITE NAME: W of Buckmanville SITE NUMBER: 4-094

COMMODITY: major Ba, Cu minor DEPOSIT TYPE: Vein

OCCURRENCE TYPE: __mine __quarry X prospect __min. occurrence REPORTER/Sears 7/84

DATE

LOCATION: county Bucks state PA MINING DISTRICT

quadrangle/scale Buckingham 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 19' 47" Longitude W: 75° 00' 57"

MINERALS:

ECONOMIC: Major Barite
Minor Chalcopyrite
Trace

GANGUE: Major Quartz
Minor
Trace

REFERENCES: Rose, 1970; Wherry, 1908.

SITE NAME: Bushington SITE NUMBER: 4-095
COMMODITY: major Ba minor DEPOSIT TYPE: Vein
OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ Sears 7/84
DATE
LOCATION: county Bucks state PA MINING DISTRICT
quadrangle/scale Buckingham 1:24,000 PHYSIOGRAPHIC AREA Triassic basin
Latitude N: 40° 19' 03" Longitude W: 75° 04' 23"
MINERALS:
ECONOMIC: Major Barite
Minor
Trace
GANGUE: Major
Minor
Trace
REFERENCES: Gordon, 1922; Rose, 1970.

SITE NAME: Lodi SITE NUMBER: 4-096
COMMODITY: major Cu minor DEPOSIT TYPE: Hornfels?
OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ Sears 7/84
DATE
LOCATION: county Bucks state PA MINING DISTRICT
quadrangle/scale Frenchtown 1:24,000 PHYSIOGRAPHIC AREA Triassic basin
Latitude N: 40° 33' 08" Longitude W: 75° 05' 20"
REFERENCES: Rose, 1970; Wherry, 1908.

SITE NAME: Tetemer's Mine (Tettemer's) SITE NUMBER: 4-097
COMMODITY: major Cu minor DEPOSIT TYPE: Hornfels?
OCCURRENCE TYPE: x mine __quarry __prospect __min. occurrence REPORTER/ Sears 7/84
DATE
LOCATION: county Bucks state PA MINING DISTRICT
quadrangle/scale Frenchtown 1:24,000 PHYSIOGRAPHIC AREA Triassic basin
Latitude N: 40° 32' 00" Longitude W: 75° 05' 24"
Location Comments: 1 mi. W of Uhlerstown.
MINERALS:
ECONOMIC: Major
Minor
Trace Chalcocite, malachite
GANGUE: Major
Minor
Trace
HOST ROCK: Triassic shale
GEOLOGIC DESCRIPTION: Traces of chalcocite and malachite in a stratum of Triassic shale have been traced 3 mi along strike; the shale has been bleached locally.
REFERENCES: Rose, 1970; Wherry, 1908.

SITE NAME: Near Uhlerstown SITE NUMBER: 4-098
COMMODITY: major Cu minor DEPOSIT TYPE: Hornfels?
OCCURRENCE TYPE: __mine __quarry __prospect X__min. occurrence REPORTER/ Sears 7/84
DATE
LOCATION: county Bucks state PA MINING DISTRICT
quadrangle/scale Frenchtown 1:24,000 PHYSIOGRAPHIC AREA Triassic basin
Latitude N: 40° 31' 36" Longitude W: 75° 05' 26"
REFERENCES: Rose, 1970; Wherry, 1908.

SITE NAME: Ferndale SITE NUMBER: 4-099
COMMODITY: major Cu minor DEPOSIT TYPE: Hornfels
OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ Sears 7/84
DATE
LOCATION: county Bucks state PA MINING DISTRICT
quadrangle/scale Riegelsville 1:24,000 PHYSIOGRAPHIC AREA Triassic basin
Latitude N: 40° 32' 45" Longitude W: 75° 10' 20"
REFERENCES: Rose, 1970; Wherry, 1908.

SITE NAME: Bursonville SITE NUMBER: 4-100
COMMODITY: major Cu minor DEPOSIT TYPE: Hornfels
OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ Sears 7/84
DATE
LOCATION: county Bucks state PA MINING DISTRICT
quadrangle/scale Riegelsville 1:24,000 PHYSIOGRAPHIC AREA Triassic basin
Latitude N: 40° 32' 25" Longitude W: 75° 13' 26"
REFERENCES: Rose, 1970; Wherry, 1908.

SITE NAME: Keller's Church SITE NUMBER: 4-101
COMMODITY: major Cu minor DEPOSIT TYPE: sediment host
OCCURRENCE TYPE: __mine __quarry X prospect __min. occurrence REPORTER/Sears 7/84
DATE
LOCATION: county Bucks state PA MINING DISTRICT
quadrangle/scale Bedminster 1:24,000 PHYSIOGRAPHIC AREA Triassic basin
Latitude N: 40° 27' 50" Longitude W: 75° 13' 24"
MINERALS:
ECONOMIC: Major
Minor Malachite, chalcocite
Trace
GANGUE: Major
Minor
Trace
HOST ROCK: Shale
REFERENCES: Rose, 1970; Wherry, 1908.

SITE NAME: Hagersville (also known as Keelersville) SITE NUMBER: 4-102

COMMODITY: major Cu minor _____ DEPOSIT TYPE: Stratabound/ sediment host

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/DATE Sears 7/84

LOCATION: county Bucks state PA MINING DISTRICT _____

quadrangle/scale Bedminster 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 24' 25" Longitude W: 75° 14' 54"

REFERENCES: Rose, 1970; Wherry 1908.

SITE NAME: New Galena Mine, Doan's Mine, Pine Run Lead Mine, New Britain Lead Mine, Dickeson Lead Mine SITE NUMBER: 4-103

COMMODITY: major Pb, Zn minor Ag, U, Au, Cu DEPOSIT TYPE: Vein

OCCURRENCE TYPE: x mine __quarry __prospect __min. occurrence REPORTER/DATE Sears 6/84

LOCATION: county Bucks state PA MINING DISTRICT Phoenixville

quadrangle/scale Doylestown 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 19' 48" Longitude W: 75° 11' 01"

Location Comments: Three mi NW of Doylestown on north branch of Neshaming Creek.

HISTORY: Galena was recognized there in 1856, and some mining was done in 1861-62. Further sporadic prospecting and possibly mining was done in 1890, 1904, and 1921. A pit 250 ft long, 50-75 ft wide, and 20-45 ft deep was excavated. Additional shafts nearby.

PRODUCTION/ASSAYS: Dickerson (1860): 15 oz. Ag/ton in 85% Pb ore. Heyl (pers. comm., 1968) reports galena as having 8.75 oz/ton for Ag, <.05 ppm Au, 1700 ppm U, 370ppmV, 37 ppm Sb. According to Smith (1977), an order of magnitude estimate of the amount of zinc and lead at New Galena have been made on the assumption that the veins have the equivalent thickness of 1 foot of pure sphalerite and galena, are 1350 ft. long and 150 ft. deep. These assumptions yield 2.0 x 10^5 ft^3 of ore which, if it consisted of equal amounts of sphalerite and galena, would have a weight of 3.5 x 10_4 tons.

MINERALS:

ECONOMIC:	Major	Sphalerite, galena, ± cerussite
	Minor	Malachite, chalcopyrite, cerussite, anglesite, linarite, brochantite, Chrysocolla
	Trace	Chalcopyrite, pyromorphite, linarite, anglesite, covellite, wulfenite, posnjakite
GANGUE:	Major	Quartz, dolomite
	Minor	Pyrite
	Trace	Calcite

PARAGENESIS: Lockatong formation deposited with syngenetic pyrite, Fe-dolomite, sphalerite and fine-grained galena; deformation; pyrite, lemon-yellow sphalerite, galena, crystalline quartz; chalcopyrite(?) and lemon-yellow sphalerite; cubic pyrite; calcite. In some places sphalerite appears to replace vein dolomite.

HOST ROCK: Triassic Lockatong formation

GEOLOGIC DESCRIPTION: Faill (1973) believes the fault occurring 675 ft SE of the mineralized zone in the SE and SW quadrants is a high angle steeply NW-dipping fault which may have served as a channel for hydrothermal solutions from depth. Smith (1973) states that the control on the ore deposition of the New Galena deposit appears to have been permeable breccia with replaceable dolomite in a reduced pyritic host, and probably containing minor acid-soluble carbonate.

REFERENCES: Earl, 1950; Faill, 1973; Rose, 1970; Smith, 1977; Smith, 1973; Willard et al, 1959.

SITE NAME: Falls of Schuylkill SITE NUMBER: 4-104

COMMODITY: major Pb minor Zn DEPOSIT TYPE: Vein

OCCURRENCE TYPE: __mine __quarry __prospect x min. occurrence REPORTER/ Sears 7/84
DATE

LOCATION: county Philadelphia state PA MINING DISTRICT

quadrangle/scale Philadelphia 1:24,000 PHYSIOGRAPHIC AREA

Latitude N: 39° 58' 57" Longitude W: 75° 11' 16"

MINERALS:

ECONOMIC: Major

Minor Galena, sphalerite

Trace

GANGUE: Major

Minor

Trace

REFERENCES: Gordon, 1922; Miller, 1924; Rose, 1970.

SITE NAME: Diehl's mine SITE NUMBER: 4-105

COMMODITY: major Au minor Cu DEPOSIT TYPE: Igneous-host/vein?

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ Sears 7/84
DATE

LOCATION: county Bucks state PA MINING DISTRICT

quadrangle/scale Quakertown 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 25' 03" Longitude W: 75° 18' 08"

HOST ROCK: Diabase

REFERENCES: Bascom et al, 1931; Gordon, 1922; Rose, 1970; Wherry, 1908.

SITE NAME: Sellersville SITE NUMBER: 4-106

COMMODITY: major Cu minor DEPOSIT TYPE: Sediment-hosted

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ Sears 6/84
DATE

LOCATION: county Bucks state PA MINING DISTRICT

quadrangle/scale Telford/Quakertown 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 22' 09" Longitude W: 75° 18' 06"

MINERALS:

ECONOMIC: Major Chalcopyrite

Minor Azurite, malachite

Trace

GANGUE: Major

Minor

Trace

REFERENCES: Eyerman, 1889; Gordon, 1922; Rose, 1970.

SITE NAME: Drakes Crossroad SITE NUMBER: 4-107
COMMODITY: major Cu minor DEPOSIT TYPE: Sediment-hosted
OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ Sears 7/84
DATE
LOCATION: county Montgomery state PA MINING DISTRICT
quadrangle/scale Telford 1:24,000 PHYSIOGRAPHIC AREA Triassic basin
Latitude N: 40° 16' 09" Longitude W: 75° 18' 54"
REFERENCES: Gordon, 1922; Rose, 1970; Wherry, 1908.

SITE NAME: Leithsville SITE NUMBER: 4-108
COMMODITY: major Cu minor DEPOSIT TYPE: Sediment-host?
OCCURRENCE TYPE: x mine __quarry __prospect __min. occurrence REPORTER/ Sears 7/84
DATE
LOCATION: county Northampton state PA MINING DISTRICT
quadrangle/scale Hellertown 1:24,000 PHYSIOGRAPHIC AREA Edge of Triassic basin
Latitude N: 40° 33' 17" Longitude W: 75° 20' 09"
Location Comments: One mi south of Leithsville.
HISTORY: Active before 1883; later work not known.
PRODUCTION/ASSAYS: Rose, 1970: "A considerable quantity" of ore containing 1.4% Cu was mined, but not profitably.
MINERALS:
ECONOMIC: Major Malachite
Minor
Trace
GANGUE: Major
Minor
Trace
HOST ROCK: Triassic conglomerate
GEOLOGIC DESCRIPTION: Near border fault of Triassic province. Malachite encrusts a conglomerate. According to Rose (1970), the general features of most of these deposits class them with the "Red beds copper" type of mineralization.
REFERENCES: Eyermann, 1889; Rose, 1970.

SITE NAME: Coopersburg SITE NUMBER: 4-109
COMMODITY: major Cu minor DEPOSIT TYPE: Hornfels?
OCCURRENCE TYPE: __mine __quarry xprospect __min. occurrence REPORTER/ Sears 7/84
DATE
LOCATION: county Lehigh state PA MINING DISTRICT
quadrangle/scale Milford Square 1:24,000 PHYSIOGRAPHIC AREA Triassic basin
Latitude N: 40° 29' 56" Longitude W: 75° 24' 49"
REFERENCES: Rose, 1970.

SITE NAME: Pennsburg SITE NUMBER: 4-110

COMMODITY: major Cu minor DEPOSIT TYPE: Sediment-host

OCCURRENCE TYPE: __mine __quarry __prospect x min. occurrence REPORTER/ Sears 7/84
DATE

LOCATION: county Montgomery state PA MINING DISTRICT

quadrangle/scale Milford Square 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 24' 19" Longitude W: 75° 28' 57"

REFERENCES: Gordon, 1922; Rose, 1970; Wherry, 1908.

SITE NAME: Red Hill SITE NUMBER: 4-111

COMMODITY: major Cu minor DEPOSIT TYPE: Sediment-host

OCCURRENCE TYPE: __mine __quarry __prospect x min. occurrence REPORTER/ Sears 7/84
DATE

LOCATION: county Montgomery state PA MINING DISTRICT

quadrangle/scale Milford Square 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 23' 06" Longitude W: 75° 28' 23"

MINERALS:

ECONOMIC: Major
Minor Malachite
Trace

GANGUE: Major
Minor
Trace

HOST ROCK: Shale

REFERENCES: Rose, 1970; Wherry, 1908.

SITE NAME: Sumneytown SITE NUMBER: 4-112

COMMODITY: major Cu minor DEPOSIT TYPE: Hornfels

OCCURRENCE TYPE: __mine __quarry __prospect x min. occurrence REPORTER/ Sears 7/84
DATE

LOCATION: county Montgomery state PA MINING DISTRICT

quadrangle/scale Perkiomenville 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 19' 54" Longitude W: 75° 25' 37"

REFERENCES: Gordon, 1922; Rose, 1970.

SITE NAME: Kibblehouse quarry SITE NUMBER: 4-113
COMMODITY: major Cu minor Co DEPOSIT TYPE: Hornfels
OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ G. R. Robinson, Jr.
DATE 02/87
LOCATION: county Montgomery state PA MINING DISTRICT
quadrangle/scale Perkiomenville 1:24,000 PHYSIOGRAPHIC AREA Triassic basin
Latitude N: 40° 19'27" Longitude W: 75° 28'21"
MINERALS:
ECONOMIC: Major Chalcopyrite
Minor Pyrite, malachite, chrysocolla
Trace Cobaltite
GANGUE: Major Actinolite
Minor Diopside, calcite
Trace Akinite, datolite
HOST ROCK: Hornfels of calcareous siltstone near diabase of the York Haven type
GEOLOGIC DESCRIPTION: Cobalt and copper mineralization is largely stratabound in distinct sedimentary layers in the hornfels. Speer and others (1978) report a cobaltite-bearing layer 1 ft thick and 50 ft long.
REFERENCES: Speer and others, 1978; Smith and others, in press, USGS Bulletin 1776.

SITE NAME: Hendricks Station SITE NUMBER: 4-114
COMMODITY: major Cu minor DEPOSIT TYPE: Hornfels
OCCURRENCE TYPE: __mine __quarry x prospect __min. occurrence REPORTER/ Sears 7/84
DATE
LOCATION: county Montgomery state PA MINING DISTRICT
quadrangle/scale Perkiomenville 1:24,000 PHYSIOGRAPHIC AREA Triassic basin
Latitude N: 40° 19' 09" Longitude W: 75° 27' 47"
REFERENCES: Gordon, 1922; Rose, 1970; Wherry, 1908.

SITE NAME: Kober's Mine SITE NUMBER: 4-115
COMMODITY: major Cu minor Pb DEPOSIT TYPE: Vein/hornfels
OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Sears 6/84
DATE
LOCATION: county Montgomery state PA MINING DISTRICT
quadrangle/scale Perkiomenville 1:24,000 PHYSIOGRAPHIC AREA Triassic basin
Latitude N: 40° 19' 02" Longitude W: 75° 26' 11"
Location Comments: 0.8 mi NE of Woxall (Mechanicsville), 0.25 mi W of Barndt Rd - Moyer Rd intersection, 0.20 mi S of SR 563.
MINERALS:
ECONOMIC: Major Chalcopyrite
Minor Galena, bornite
Trace Tenorite, malachite, azurite, chrysocolla, native Cu, pyromorphite
GANGUE: Major Garnet, epidote
Minor Quartz
Trace
HOST ROCK: Triassic shale
GEOLOGIC DESCRIPTION: The ore occurs in fault breccia near the projection of the fault through the Buckmanville barite mine. The host rock is crushed and slickensided; shale is altered and contains garnet and epidote. Natrolite and stilbite occur in nearby diabase.
REFERENCES: Bascom et al., 1931; Gordon, 1922; Newhouse, 1933; Rose, 1970; Wherry, 1908.

SITE NAME: Karl's Mine SITE NUMBER: 4-116

COMMODITY: major Cu minor DEPOSIT TYPE: Vein/hornfels

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Sears 6/84

DATE

LOCATION: county Montgomery state PA MINING DISTRICT

quadrangle/scale Perkiomenville 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 19' 01" Longitude W: 75° 29' 38"

Location Comments: One-half mi NW of Woxall (Mechanicsville), about 1.5 mi SE of Green Lane

HISTORY: Several shafts were sunk in 1875.

MINERALS:

ECONOMIC: Major Chalcopyrite, hematite

Minor Bornite

Trace Azurite, chrysocolla, malachite, native copper, magnetite(?)

GANGUE: Major Epidote, garnet

Minor

Trace

HOST ROCK: Triassic shale

GEOLOGIC DESCRIPTION: The ore occurs in shattered, crushed, and slickensided shale along the crest of a fold which becomes a fault farther east, at the contack with a diabase sheet.

REFERENCES: Bascom et al., 1931; Gordon, 1922; Newhouse, 1933; Rose, 1970; Wherry, 1908.

SITE NAME: Young's Mine SITE NUMBER: 4-117

COMMODITY: major Cu minor Au? DEPOSIT TYPE: Hornfels ?

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Sears 6/84

DATE

LOCATION: county Montgomery state PA MINING DISTRICT

quadrangle/scale Perkiomenville 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 18' 33" Longitude W: 75° 28' 02"

Location Comments: 3/8 mi NW of Hendricks, near Kratz, on W side of Perkiomen Creek, 0.75 mi E of SR 29 and 0.3 mi W of Hendricks Station Rd.

HISTORY: In 1903 a stock company sunk a 150 foot shaft on the property. Nothing more recent is known.

MINERALS:

ECONOMIC: Major Chalcopyrite, bornite

Minor

Trace

GANGUE: Major Epidote

Minor

Trace

HOST ROCK: Triassic sediments

GEOLOGIC DESCRIPTION: Ore occurs at contact of Triassic sediments with a diabase sheet, in shattered rocks in the crest of a fold which becomes a large fault farther east. Rocks are altered, crushed, and slickensided.

REFERENCES: Bascom et al, 1931; Gordon, 1922; Newhouse, 1933; Rose, 1970; Wherry, 1908.

SITE NAME: Schwencksville SITE NUMBER: 4-118
COMMODITY: major Cu minor DEPOSIT TYPE: Hornfels?
OCCURRENCE TYPE: __mine __quarry x prospect __min. occurrence REPORTER/ Sears 7/84
DATE
LOCATION: county Montgomery state PA MINING DISTRICT
quadrangle/scale Perkiomenville 1:24 000 PHYSIOGRAPHIC AREA Triassic basin
Latitude N: 40° 16' 20" Longitude W: 75° 27' 25"
REFERENCES: Rose, 1970; Wherry, 1908.

SITE NAME: Lederachsville SITE NUMBER: 4-119
COMMODITY: major Cu minor DEPOSIT TYPE: Sediment-host
OCCURRENCE TYPE: __mine __quarry __prospect x min. occurrence REPORTER/ Sears 7/84
DATE
LOCATION: county Montgomery state PA MINING DISTRICT
quadrangle/scale Perkiomenville 1:24,000 PHYSIOGRAPHIC AREA Triassic basin
Latitude N: 40° 16' 05" Longitude W: 75° 23' 19"
REFERENCES: Gordon, 1922; Rose, 1970; Wherry, 1908.

SITE NAME: Graters Ford SITE NUMBER: 4-120
COMMODITY: major Cu minor DEPOSIT TYPE: Sediment-host
OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ Sears 7/84
DATE
LOCATION: county Montgomery state PA MINING DISTRICT
quadrangle/scale Collegeville 1:24,000 PHYSIOGRAPHIC AREA Triassic basin
Latitude N: 40° 13' 46" Longitude W: 75° 27' 28"
REFERENCES: Gordon, 1922; Rose, 1970; Wherry, 1908.

SITE NAME: Collegeville Station SITE NUMBER: 4-121
COMMODITY: major Cu minor DEPOSIT TYPE: Sediment-host
OCCURRENCE TYPE: __mine __quarry __prospect x__min. occurrence REPORTER/ Sears 7/84
DATE
LOCATION: county Montgomery state PA MINING DISTRICT
quadrangle/scale Collegeville 1:24,000 PHYSIOGRAPHIC AREA Triassic basin
Latitude N: 40° 12' 24" Longitude W: 75° 27' 20"
REFERENCES: Gordon, 1922; Rose, 1970; Wherry, 1908.

SITE NAME: Arcola SITE NUMBER: 4-122
COMMODITY: major Cu minor DEPOSIT TYPE: Vein
OCCURRENCE TYPE: __mine __quarry __prospect x min. occurrence REPORTER/ Sears 7/84
DATE
LOCATION: county Montgomery state PA MINING DISTRICT
quadrangle/scale Collegeville 1:24,000 PHYSIOGRAPHIC AREA Triassic basin
Latitude N: 40° 09' 29" Longitude W: 75° 26' 40"
REFERENCES: Gordon, 1922; Rose, 1970.

SITE NAME: Shannonville mine SITE NUMBER: 4-123

COMMODITY: major Cu minor DEPOSIT TYPE: Vein

OCCURRENCE TYPE: __mine __quarry x prospect __min. occurrence REPORTER/ Sears 7/84

DATE

LOCATION: county Montgomery state PA MINING DISTRICT

quadrangle/scale Collegeville 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 08' 30" Longitude W: 75° 25' 28"

REFERENCES: Gordon, 1922; Miller, 1924; Rose, 1970.

Ecton, Whim

SITE NAME: Perkiomen Mine Wetherill SITE NUMBER: 4-124

COMMODITY: major Pb, Cu minor Zn DEPOSIT TYPE: Vein

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Sears 6/84

DATE

LOCATION: county Montgomery state PA MINING DISTRICT Phoenixville

quadrangle/scale Collegeville 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 07' 56" Longitude W: 75° 26' 16"

Location Comments: NW side of Mine Run, 0.55 mi NE of Mine Run-Perkiomen Creek junction; 4 mi E of Phoenixville, 0.40 mi NW of Egypt Road-Park Ave intersection

HISTORY: Lead discovered in area in 1808; mining began in 1809. Work stopped in 1810 but was soon resumed. Work ceased again in 1826. In 1851-1858 the Perkiomen Consolidated Mining Co. mined copper ore. The U.S. Bureau of Mines drilled in 1948; of five holes, two intersected mineralized rock.

PRODUCTION/ASSAYS: Estimated amounts: 1-1000 kg Zn, >1000 kg Pb, Cu. Assays: 12,200 tons of ore in 1852 yielded 617 tons of concentrate containing 18% Cu. Williams (1863) reported 680 tons of ore for year ending April, 1852 with 7 to 23% copper recovered.

MINERALS:

ECONOMIC:	Major	Chalcopyrite, galena, malachite
	Minor	Bornite, cerussite
	Trace	Anglesite, azurite, chrysolla, cuprite, linarite, pyromorphite, sphalerite, wulfenite, smithsonite, pseudomalachite
GANGUE:	Major	Quartz, "limonite"
	Minor	Barite, ferroan dolomite
	Trace	Chlorite

PARAGENESIS: Vein quartz followed by minor galena; ferroan dolomite with galena and sphalerite, chalcopyrite just prior to the end of ferroan dolomite deposition; chlorite and calcite

HOST ROCK: Triassic Stockton Formation

GEOLOGIC DESCRIPTION: The ore occurs in red sandstone, siltstone and shale, some of which are arkosic or calcareous. The mineralized vein occupies a fault zone about 20 feet wide trending about N40° E and dipping 75N. It consists of vuggy white quartz with some carbonate containing fragments of bleached shale. Possibly, it is zoned both horizontally and vertically. Sphalerite is sparse at Perkiomen and Whim, but common at Ecton (Smith, 1977), while copper reportedly increases, relative to lead, with depth. According to Williams (1863, p. 12), "the vein has shown itself to be exceedingly rich, the ores appear to be very irregularly disseminated, occuring in heavy bunches and masses rather than being uniformly distributed.... the limits of the ore are marked by the occurrence of large deposits of blende."

REFERENCES: Earl, 1950; Rose, 1970; Smith, 1977; Williams, 1863.

SITE NAME: Whim Mine Wetherill, Ecton SITE NUMBER: 4-125

COMMODITY: major Pb, Cu minor Zn, Ag DEPOSIT TYPE: Vein

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Sears 6/84
DATE

LOCATION: county Montgomery state PA MINING DISTRICT Phoenixville

quadrangle/scale Collegeville 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 07' 50" Longitude W: 75° 26' 22"

Location Comments: SE side of Mine Run, 0.4 mi NW of crossroads at Audubon and 0.55 mi NE of junction of Mine Run and Perkiomen Creek

HISTORY: See Perkiomen Mine (124).

PRODUCTION/ASSAYS: Estimates of ore metals (Smith, 1977) : 1-1000 g. Ag, 1-1000 kg. Zn, >1000 kg Pb, Cu

MINERALS:

ECONOMIC: Major Chalcopyrite, malachite
Minor Galena
Trace Cerrusite, linarite, native silver, pseudomalachite, pyromorphite, sphalerite, wulfenite

GANGUE: Major Quartz, limonite, ferroan dolomite
Minor
Trace

PARAGENESIS: See Perkiomen Mine (124).

HOST ROCK: See Perkiomen Mine (124).

GEOLOGIC DESCRIPTION: See Perkiomen Mine (124).

REFERENCES: See Perkiomen Mine (124).

SITE NAME: Ecton Mine SITE NUMBER: 4-126

COMMODITY: major Pb minor Zn, Ag DEPOSIT TYPE: Vein

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Sears 6/84
DATE

LOCATION: county Montgomery state PA MINING DISTRICT Phoenixville

quadrangle/scale Collegeville 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 07' 41" Longitude W: 75° 26' 31"

Location Comments: 20 mi NE of junction of Mine Run with Perkiomen Creek; 4 mi E of Phoenixville 2000 ft SW of Perkiomen Mine .

HISTORY: See Perkiomen Mine (124).

PRODUCTION/ASSAYS: See Perkiomen (124).

MINERALS:

ECONOMIC: Major Chalcopyrite, sphalerite
Minor Galena, linarite, pyrite
Trace Anglesite, brochantite, cerussite, chrysocolla, serpierite, greenockite, hemimorphite, langite, posnjakite, pyromorphite

GANGUE: Major Quartz, "limonite"
Minor
Trace Barite

PARAGENESIS: See Perkiomen (124).

HOST ROCK: Triassic Stockton Formation of red sandstone, siltstone, and shale; some of these rocks are arkosic or calcareous (Earl, 1950c).

GEOLOGIC DESCRIPTION: See Perkiomen (124).

REFERENCES: See Perkiomen (124).

SITE NAME: Wetherill Mine Ecton, Whim SITE NUMBER: 4-127

COMMODITY: major Pb minor Cu, Zn DEPOSIT TYPE: Vein

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Sears 6/84
DATE

LOCATION: county Montgomery state PA MINING DISTRICT Phoenixville

quadrangle/scale Valley Forge 1:24,000 PHYSIOGRAPHIC AREA Piedmont

Latitude N: 40° 07' 22" Longitude W: 75° 26' 39"

Location Comments: 0.7 mi SW of crossroads at Audubon and 0.2 mi S of Mine Run - Perkiomen Creek junction.

HISTORY: See Perkiomen Mine 124 .

PRODUCTION/ASSAYS: See Perkiomen Mine (124).

MINERALS:

ECONOMIC: Major Anglesite, cerussite, galena
Minor
Trace Malachite

GANGUE: Major "Limonite"
Minor
Trace

PARAGENESIS: See Perkiomen (124).

HOST ROCK: See Perkiomen (124).

GEOLOGIC DESCRIPTION: See Perkiomen (124).

REFERENCES: See Perkiomen

SITE NAME: Port Kennedy Mine SITE NUMBER: 4-128

COMMODITY: major Cu minor DEPOSIT TYPE: Vein

OCCURRENCE TYPE: __mine __quarry x prospect __min. occurrence REPORTER/ Sears 7/84
DATE

LOCATION: county Montgomery state PA MINING DISTRICT

quadrangle/scale Valley Forge 1:24,000 PHYSIOGRAPHIC AREA

Latitude N: 40° 07' 17" Longitude W: 75° 24' 54"

REFERENCES: Gordon, 1922; Miller, 1924; Rose, 1970.

SITE NAME: Jug Hollow Mine SITE NUMBER: 4-129

COMMODITY: major Ba,Zn minor Cu, Pb DEPOSIT TYPE: Vein

OCCURRENCE TYPE: __mine __quarry x prospect __min. occurrence REPORTER/ Sears 6/84
DATE

LOCATION: county Chester state PA MINING DISTRICT Phoenixville

quadrangle/scale Valley Forge 1:24,000 PHYSIOGRAPHIC AREA Piedmont

Latitude N: 40° 05' 36" Longitude W: 75° 29' 09"

Location Comments: In Jug Hollow, 0.6 mi SW of Brittains Corner, Schuylkill Township. The mine is 150 ft SE of and uphill from Jug Hollow road at 340 ft elevation, 0.63 mi SE of the Jug Hollow-Valley Park Rd. intersection.

HISTORY: May be "Pethericks Penn Mining and Smelting Co." shaft of Rogers' map (1858, v. II, p. 674-675).

PRODUCTION/ASSAYS: Dump ore assayed by U.S. Geological Survey yielded 0.07% Cd in sample containing 5% Zn.

MINERALS:

ECONOMIC: Major Barite
Minor Chalcopyrite, sphalerite
Trace Galena, anglesite, malachite, tenorite(?)

GANGUE: Major Calcite, ferroan dolomite, quartz (both crystalline & chert)
Minor Chlorite or muscovite (?)
Trace Limonite

PARAGENESIS: From oldest to youngest: quartz, chalcopyrite, barite, sphalerite, quartz, galena, anglesite, and malachite. There are overlaps between the deposition of quartz, barite, and sphalerite.

HOST ROCK: Precambrian or Lower Paleozoic chlorite schist; Miller (1923, p. 2) called the host rock Baltimore gneiss.

REFERENCES: Gordon, 1922; Miller, 1923; Rogers, 1858; Smith, 1977.

SITE NAME: Fegley Mine SITE NUMBER: 4-131

COMMODITY: major Fe minor DEPOSIT TYPE: vein/replacement

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Sears 6/84
DATE

LOCATION: county Berks state PA MINING DISTRICT

quadrangle/scale Sassamansville 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 21' 48" Longitude W: 75° 37' 08"

Location Comments: 2.5 mi NNW of Boyertown, about .75 mi SE of Bechtelsville

HISTORY: Mentioned by Spencer (1908) as an inactive mine.

PRODUCTION/ASSAYS: Some ore is said to have been produced, but apparently only a small amount.

MINERALS:

ECONOMIC: Major
Minor Magnetite
Trace

GANGUE: Major
Minor
Trace

HOST ROCK: Diabase

GEOLOGIC DESCRIPTION: Ore apparently occurs in a fracture in diabase. A vein of magnetite intergrown with feldspar has been found on the mine dump. Stilbite has been reported from the dump. A 500 gamma magnetic anomaly occurs at the mine. According to Rose (1970) this is a Cornwall-type magnetite deposit.

REFERENCES: Gordon, 1922; Hawkes, Wedow and Balsley, 1953; Rose, 1970; Spencer, 1908.

SITE NAME: Congo (3 localities) SITE NUMBER: 4-130, 4-132, 4-133
COMMODITY: major Cu minor DEPOSIT TYPE: Diabase-host
OCCURRENCE TYPE: __mine __quarry x prospect __min. occurrence REPORTER/ Sears 7/84
DATE
LOCATION: county Montgomery state PA MINING DISTRICT
quadrangle/scale Sassamansville 1:24,000 PHYSIOGRAPHIC AREA Triassic basin
Latitude N: see below Longitude W:
Location Comments: Three localities: 1) 40° 21' 19" N, 75° 35' 15" W;
2) 40° 21' 48" N, 75° 35' 15" W; 3) 40° 21' 52" N, 75° 34' 22" W
HOST ROCK: Diabase
REFERENCES: Rose, 1970; Spencer, 1908; Wherry, 1908.

SITE NAME: Brendlinger Mine SITE NUMBER: 4-134
COMMODITY: major Cu minor DEPOSIT TYPE: Hornfels?
OCCURRENCE TYPE: __mine __quarry x prospect __min. occurrence REPORTER/ Sears 7/84
DATE
LOCATION: county Montgomery state PA MINING DISTRICT
quadrangle/scale Sassamansville 1:24 000 PHYSIOGRAPHIC AREA Triassic basin
Latitude N: 40° 20' 21" Longitude W: 75° 34' 53"
REFERENCES: Newhouse, 1933; Rose, 1970; Wherry, 1908.

SITE NAME: Layfield SITE NUMBER: 4-135
COMMODITY: major Cu minor DEPOSIT TYPE: Sediment-host
OCCURRENCE TYPE: __mine __quarry __prospect x min. occurrence REPORTER/ Sears 7/84
DATE
LOCATION: county Montgomery state PA MINING DISTRICT
quadrangle/scale Sassamansville 1:24,000 PHYSIOGRAPHIC AREA Triassic basin
Latitude N: 40° 19' 18" Longitude W: 75° 34' 44"
REFERENCES: Gordon, 1922; Rose, 1970; Wherry, 1908.

SITE NAME: Gilbertville SITE NUMBER: 4-136
COMMODITY: major Cu minor DEPOSIT TYPE: Sediment-host
OCCURRENCE TYPE: __mine __quarry __prospect x min. occurrence REPORTER/ Sears 7/84
DATE
LOCATION: county Montgomery state PA MINING DISTRICT
quadrangle/scale Sassamansville 1:24,000 PHYSIOGRAPHIC AREA Triassic basin
Latitude N: 40° 18' 47" Longitude W: 75° 36' 58"
REFERENCES: Gordon, 1922; Rose, 1970; Wherry, 1908.

SITE NAME: Pennsylvania Copper Company Mine SITE NUMBER: 4-137
COMMODITY: major Cu minor DEPOSIT TYPE: hornfels
OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ G. R. Robinson, Jr.
DATE 02/87
LOCATION: county Montgomery state Pennsylvania MINING DISTRICT
quadrangle/scale Sassamanville 1:24,000 PHYSIOGRAPHIC AREA Triassic basin
Latitude N: 40° 16'16" Longitude W: 75° 35' 32"
Location Comments: two miles northeast of Pottstown
HISTORY: A small furnace was erected in the 1900's.
PRODUCTION/ASSAYS: Grade estimated at 0.5% copper (Rose, 1970). Small production, if any.
MINERALS:
ECONOMIC: Major Chrysocolla
Minor
Trace
GANGUE: Major
Minor
Trace
HOST ROCK: Hornfels of Triassic shale
GEOLOGIC DESCRIPTION: Films of chrysocolla on fractured hornfels
REFERENCES: Rose, 1970; Stone, 1939; Wherry, 1908

SITE NAME: Saratoga SITE NUMBER: 4-138
COMMODITY: major Cu minor DEPOSIT TYPE: Sediment-host
OCCURRENCE TYPE: __mine __quarry x prospect __min. occurrence REPORTER/ Sears 7/84
DATE
LOCATION: county Montgomery state PA MINING DISTRICT
quadrangle/scale Phoenixville 1:24,000 PHYSIOGRAPHIC AREA Triassic basin
Latitude N: 40° 14' 54" Longitude W: 75° 35' 43"
REFERENCES: Bascom and Stose 1938· Rose 1970.

SITE NAME: Phoenixville Tunnel SITE NUMBER: 4-139
COMMODITY: major Zn minor DEPOSIT TYPE: Vein
OCCURRENCE TYPE: __mine __quarry __prospect x min. occurrence REPORTER/ Sears 6/84
DATE
LOCATION: county Chester state PA MINING DISTRICT
quadrangle/scale Phoenixville 1:24,000 PHYSIOGRAPHIC AREA Triassic basin
Latitude N: 40° 09' 20" Longitude W: 75° 31' 05"
MINERALS:
ECONOMIC: Major Sphalerite
Minor
Trace
GANGUE: Major
Minor
Trace
REFERENCES: Gordon, 1922; Rose, 1970.

SITE NAME: Morris Copper Mine SITE NUMBER: 4-140

COMMODITY: major Cu minor DEPOSIT TYPE: Vein

OCCURRENCE TYPE: x mine __quarry __prospect __min. occurrence REPORTER/DATE Sears 6/84

LOCATION: county Chester state PA MINING DISTRICT

quadrangle/scale Phoenixville 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 07' 39" Longitude W: 75° 30' 46"

REFERENCES: Miller, 1924; Rose, 1970.

SITE NAME: Charlestown Mine SITE NUMBER: 4-141

COMMODITY: major Pb minor Ba, Zn, Cu, Ag DEPOSIT TYPE: Vein

OCCURRENCE TYPE: x mine __quarry __prospect __min. occurrence REPORTER/DATE Robinson 6/84

LOCATION: county Chester state PA MINING DISTRICT Phoenixville

quadrangle/scale Malvern 1:24,000 PHYSIOGRAPHIC AREA Piedmont

Latitude N: 40° 06' 39" Longitude W: 75° 32' 14"

Location Comments: 1.25 mi NE of Charlestown, 1.55 mi SW of PA Rt. 23 - 29 intersection, 0.45 mi NW of RR bridge over Pickering Creek. Mine shaft reported 150 ft SW of RR line at 195' elevation.

HISTORY: Deposits discovered in 1850, and worked from 1851-1855. Small amount of production is inferred.

PRODUCTION/ASSAYS: Few tons of galena ore reported by Turnbull (1854, p. 323). Smith (1977) estimates <1000 g. Zn, Cu and <1000 kg Pb and >1000 kg Ba. Galena from district is argentiferous (2-10 oz. Ag/ton).

MINERALS:

ECONOMIC:	Major	Pyromorphite, anglesite
	Minor	Sphalerite, galena, cerussite, hematite
	Trace	Chalcopyrite, malachite, linarite (?)
GANGUE:	Major	Quartz, barite, limonite
	Minor	
	Trace	

HOST ROCK: Pickering Gneiss

GEOLOGIC DESCRIPTION: The gneiss unit, a metasedimentary graphitic gneiss with quartz, minor potassium feldspar, biotite, and hornblende, is cut by the ore vein about 100 feet south of the Triassic Gettysburg basin, near an unconformity. Related veins cut other nearby Triassic rocks. The ore vein has a strike of S32° W, a dip of 70° SE, and cuts both the gneissic foliation and joints. The vein is traceable to a length of 800 feet, and is reported to have a length of .85 miles with a width of 2-4 feet.

REFERENCES: Rogers, 1853; Smith, 1977; Turnbull, 1854.

Brookdale Mine

SITE NAME: Wheatley Mine and vicinity Phoenix Mine SITE NUMBER: 4-142

COMMODITY: major Pb, Zn minor Cu, Ag, Mo, As, V DEPOSIT TYPE: Vein

OCCURRENCE TYPE: x mine __quarry __prospect __min. occurrence REPORTER/ Sears 6/84 DATE

LOCATION: county Chester state PA MINING DISTRICT Phoenixville

quadrangle/scale Malvern 1:24,000 PHYSIOGRAPHIC AREA Piedmont

Latitude N: 40° 06' 20" Longitude W: 75° 31' 02"

Location Comments: 1725 ft. SW of Williams Corner; 1720 ft. SE of Tinker/Hill-Creek Rd intersection (Smith, 1977) (Wheatley Engine Shaft)

HISTORY: Veins were discovered about 1850, and lead mining occurred from 1851 to 1855. Sporadic work continued until 1870. Additional prospecting and mining, 1918-1920. Total of 4000 feet of drifts driven. USBM exploration holes drilled 1949 - summary in Smith (1977, p. 270).

PRODUCTION/ASSAYS: Estimates of ore metals (Smith, 1979): 1-1000 g. V; 1-1000 kg. Cu, Ag, Mo As; >1000 kg. Zn, Pb, Cu? Assays: Rogers (1853, p. 380): Gossan from Wheatley, 10 oz. Ag/ton. Blake (1860, p. 414): galena ore of 70-80% Pb averaged 26-30 oz. Ag/ton, with range 15-120 oz. Blake also reported pyromorphite ore yielded 5 oz. Ag/ton, and that 1000 tons of lead concentrates in 1854 averaged 60% Pb. Wheatley (1855, p. 15) reported 1600 tons of Ag-Pb ore (concentrates) from Wheatley Mine. Blake (1860) and Silliman et al. (1864) estimated 1800 tons total production for Wheatley Mine. Heyl (USGS), assuming a 2 ft. thick vein with a grade of 5% Pb, 7% Zn, 1.4% Cu, and 2 oz. Ag/ton of ore, mined to a width of 6 feet, estimated gross ore production of: 35,000 short tons for Wheatley, 6,000 tons for Brookdale, and 800 tons for Phoenix. Heyl reported a semi-quantitative analysis of 1.0% Fe, .002% Ag, 1.0% Cd,.0015% Ga, .01% Ge, and 17 ppm Hg in ferroan dolomite containing traces of chalcopyrite, galena, and sphalerite.

MINERALS:

ECONOMIC:	Major	Sphalerite, pyromorphite
	Minor	Galena, cerussite
	Trace	Anglesite, chalcopyrite, malachite
GANGUE:	Major	Quartz, ferroan dolomite
	Minor	
	Trace	Barite, calcite

PARAGENESIS: Brecciation of granitic gneiss, ferroan dolomite and chalcopyrite; quartz deposited first with chalcopyrite, later with galena; galena; sphalerite; supergene minerals as pyromorphite, anglesite, cerussite. Calcite veinlets postdate ferroan dolomite, and some fluorite formed on the calcite.

HOST ROCK: Most of the vein is in PreCambrian biotite-hornblende granitic gneiss, which has foliation striking S20° and 35° dipping. Northern part of the vein is in red siltstone of the Triassic Stockton Formation.

GEOLOGIC DESCRIPTION: Ore occurs in quartz veins striking N35°E and dipping steeply SE. Wheatley vein cuts and displaces three diabasic dikes of Triassic? age. Some post-vein faulting has occurred. Veins extend across unconformity between Triassic sediments and _____; veins are 1-5 feet thick. Primary (hypogene) zoning in the Wheatley vein was noted by Smith (1855) and Hoofstetten (1855), and zoning of secondary (supergene) lead minerals was well-described by Smith (1855, p. 253). Mineralization occurs to at least 300 ft. depth; sphalerite, galena and dolomite are more abundant at depth; pyromorphite, galena and cerussite are more abundant at shallow levels.

REFERENCES: Smith, 1977; Harvey, 1865; Blake, 1860; Rogers, 1858; Smith, 1855; Hoofstetten, 1855

SITE NAME: Chester County Mine SITE NUMBER: 4-143

COMMODITY: major Pb, Zn, Cu minor Ag DEPOSIT TYPE: Vein

OCCURRENCE TYPE: x mine __quarry __prospect __min. occurrence REPORTER/ Sears 6/84
DATE

LOCATION: county Chester state PA MINING DISTRICT Phoenixville

quadrangle/scale Malvern 1:24,000 PHYSIOGRAPHIC AREA Piedmont

Latitude N: 40° 06' 20" Longitude W: 75° 31' 08"

Location Comments: 2000 ft SW of Creek Rd.- White Horse Rd. intersection; 875 ft. SE of Creek Rd. - Tinker Hill Rd. intersection; 150 ft. SSE of Pickering Hunt Club Barn.

HISTORY: Active from 1850 to June 9, 1853; had 8 shafts by 1852.

PRODUCTION/ASSAYS: Genth (1851) reported that lead metal from mine contained 57 oz. Ag/ton, with a chalcopyrite concentrate yielding 6 oz. Ag/ton. Booth (in Genth, 1851) found 71.5% Pb and 1.6% Ag in pure pyromorphite. Turnbull (1854) reported recovery of 25-37 oz. Ag/ton in metallic lead.

MINERALS:

ECONOMIC:	Major	Sphalerite, pyromorphite, galena, cerrusite
	Minor	Anglesite
	Trace	Wulfenite, brochantite, smithsonite, linarite, covellite
GANGUE:	Major	Quartz (with galena in crystal tips)
	Minor	Calcite, goethite, hematite
	Trace	

PARAGENESIS: Fracturing of granitic gneiss; ferroan dolomite; cockscomb quartz, with galena deposition beginning near the end of quartz deposition; galena; sphalerite; and barite. Age of chalcopyrite is uncertain, but probably was post-quartz and coeval with galena or earlier ferroan dolomite.

HOST ROCK: Precambrian granitic gneiss

GEOLOGIC DESCRIPTION: Genth (1851) described the host as orthoclase biotite gneiss, hornblende replacing biotite to the SW. Gneissic foliation strikes NW with dip 40° NE. Gneiss is cut by granite veins (dikes?) trending NE.

REFERENCES: Bascom and Stose, 1938; Genth, 1851; Miller, 1923; Reed, 1949; Smith, 1977; Turnbull, 1854.

SITE NAME: Montgomery County Mine SITE NUMBER: 4-144

COMMODITY: major Zn, Pb minor Cu, Ag DEPOSIT TYPE: Vein

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Sears 6/84
DATE

LOCATION: county Chester state PA MINING DISTRICT Phoenixville

quadrangle/scale Malvern 1:24,000 PHYSIOGRAPHIC AREA Piedmont

Latitude N: 40° 06' 18" Longitude W: 75° 31' 32"

Location Comments: Main shaft is in front yard of David Howe property, 45 ft NW of Tinker Hill Rd. and 95 ft NE of Graham Rd. Mine area is at 190 ft. elevation, 0.75 mi SW of Williams Corner, 350 ft. NE of Charlestown Twnp. line.

HISTORY: All recorded activity dates 1850-1855. In 1853 new owners put in 118 ft. shaft, and three shallow shafts and an adit were excavated.

PRODUCTION/ASSAYS: Miller (1924, p. 42), probably referring to the Superintendent's report of May 31, 1853, notes that some galena from the mine contained 15-18 oz. Ag/ton.

MINERALS:

ECONOMIC:	Major	Sphalerite, galena
	Minor	Pyromorphite
	Trace	Smithsonite, chalcopyrite, anglesite
GANGUE:	Major	Quartz
	Minor	Dolomite, hematite
	Trace	Marcasite (?), calcite, pyrite

PARAGENESIS: Faulting of gneissic country rock; quartz, chalcopyrite, galena; sphalerite and pyrite; calcite; pyromorphite, anglesite, and smithsonite by supergene alteration. Definite overlap of quartz and galena.

HOST ROCK: Pickering gneiss (?)

GEOLOGIC DESCRIPTION: Rogers (1858, p. 700) describes host as a gneiss of three varieties: 1) thin-bedded micaceous gneiss, 2) ferruginous hornblende gneiss, and 3) thick-bedded quartz-feldspar granitic gneiss. Reed (1949, p. 4) says host is granodiorite.

REFERENCES: Miller, 1924; Reed, 1949; Rogers, 1858; Rose, 1970; Smith, 1977; Turnbull, 1854.

SITE NAME: Southwest Chester County Mine SITE NUMBER: 4-145

COMMODITY: major Pb Zn Cu minor Ag DEPOSIT TYPE: Vein

OCCURRENCE TYPE: x mine __quarry __prospect __min. occurrence REPORTER/ Sears 6/84
DATE

LOCATION: county Chester state PA MINING DISTRICT Phoenixville

quadrangle/scale Malvern 1:24,000 PHYSIOGRAPHIC AREA Piedmont

Latitude N: 40° 06' 15" Longitude W: 75° 31' 18"

Location Comments: Main shaft is 3000 ft SW of Williams Corner, 1250 ft SSE of Creek Rd - Tinker Hill Rd intersection, 1075 ft S55W of Chester County Mine

HISTORY: Reactivated, 1918-1920 (originally begun with Chester County mine in 1850?)

PRODUCTION/ASSAYS: 1919 - produced 500 tons of ore and in 1920 shipped 100 tons of galena concentrate which assayed 79% Pb and 7 1/2 oz Ag (Reed, 1949b, p. 3).

MINERALS:

ECONOMIC: Major Sphalerite, galena
Minor Pyromorphite, anglesite
Trace Wulfenite, vanadinite, descloizite, smithsonite, cerussite

GANGUE: Major Quartz with galena in crystal tips; ferroan dolomite
Minor
Trace Barite, calcite

PARAGENESIS: Fracturing of granitic gneiss; ferroan dolomite; cockscomb quartz with galena beginning near the end of quartz deposition; galena; sphalerite; and barite. Time of chalcopyrite deposition is uncertain, but probably was after the quartz and with the galena or earlier ferroan dolomite.

HOST ROCK: Precambrian granodiorite and quartz monzonite (Bascom and Stose, 1938, p. 124).

GEOLOGIC DESCRIPTION: According to Miller (1923, p. 6), vein is composed of (thickness in parentheses): thin streak of galena in shattered quartz (2 in); barren impure quartz (1 in); streak of sphalerite in quartz (1 in); shattered quartz and decomposed rock with nests of white quartz and small bunches of galena (31 in); streak of galena and quartz with some clay gauge (3-6 in); and open fissure, walls lined with quartz crystals with occasional crystals of galena (2 in).

Genth (1851, p. 20-21) called as orthoclase biotite gneiss, hornblende replacing biotite to the SW. Strike of gneissic foliation is NW, dip 40° NE. Gneiss is cut by granitic veins (dikes?) trending NE.

REFERENCES: Bascom and Stose, 1938; Genth, 1851; Miller, 1923; Reed, 1949; Smith, 1977; Turnbull, 1854.

SITE NAME: Brookdale Mine Phoenix SITE NUMBER: 4-146

COMMODITY: major Zn, Pb minor Cu, Ag DEPOSIT TYPE: Vein

OCCURRENCE TYPE: x mine __quarry __prospect __min. occurrence REPORTER/ Sears 6/84
DATE

LOCATION: county Chester state PA MINING DISTRICT Phoenixville

quadrangle/scale Malvern 1:24,000 PHYSIOGRAPHIC AREA Piedmont

Latitude N: 40° 06' 03" Longitude W: 75° 31' 16"

Location Comments: 3725 ft. SW of Williams Corners, 2550 ft. SSE of Tinker Hill- Creek Rd; 2175 ft. W of White Horse Rd. (Brookdale Engine Shaft)

HISTORY: See Wheatley (142).

PRODUCTION/ASSAYS: See Wheatley (142).

MINERALS:

ECONOMIC: Major Sphalerite, galena
Minor Pyromorphite, chalcopyrite, cerussite, anglesite
Trace Brochantite, wulfenite

GANGUE: Major Quartz
Minor
Trace Ferroan dolomite

PARAGENESIS: See Wheatley (142).

HOST ROCK: See Wheatley (142).

GEOLOGIC DESCRIPTION: See Wheatley (142).

REFERENCES: See Wheatley

Wheatley

SITE NAME: Phoenix Mine Brookdale SITE NUMBER: 4-147

COMMODITY: major Zn, Pb minor Ag, Cu DEPOSIT TYPE: Vein

OCCURRENCE TYPE: x mine __quarry __prospect __min. occurrence REPORTER/ Sears 6/84
DATE

LOCATION: county Chester state PA MINING DISTRICT Phoenixville

quadrangle/scale Malvern 1:24,000 PHYSIOGRAPHIC AREA Piedmont

Latitude N: 40° 05' 50" Longitude W: 75° 31' 26"

Location Comments: 5175 ft. SW of Williams Corners, 3775 ft. S. of Tinker Hill-Creek Rd., 1475 ft. NW of White Horse Rd. (Phoenix Shaft)

HISTORY: See Wheatley (142).

PRODUCTION/ASSAYS: See Wheatley (142).

MINERALS:

ECONOMIC: Major
Minor Pyromorphite, galena, sphalerite
Trace Native silver, linarite, cerussite, anglesite, brochantite

GANGUE: Major Quartz
Minor Goethite
Trace

PARAGENESIS: See Wheatley (142).

HOST ROCK: See Wheatley (142).

GEOLOGIC DESCRIPTION: See Wheatley (142).

REFERENCES: See Wheatley (142).

SITE NAME: Pethericks Penn mine SITE NUMBER: 4-148

COMMODITY: major Pb minor DEPOSIT TYPE: Vein

OCCURRENCE TYPE: __mine __quarry x prospect __min. occurrence REPORTER/ Sears 7/84

DATE

LOCATION: county Chester state PA MINING DISTRICT

quadrangle/scale Malvern 1:24,000 PHYSIOGRAPHIC AREA basin

Latitude N: 40° 05' 49" Longitude W: 75° 31' 11"

MINERALS:

ECONOMIC: Major Galena

Minor

Trace

GANGUE: Major

Minor

Trace

REFERENCES: Miller, 1924; Rose, 1970.

SITE NAME: Pennypacker Mine SITE NUMBER: 4-149

COMMODITY: major Pb minor Cu DEPOSIT TYPE: Vein

OCCURRENCE TYPE: x mine __quarry __prospect __min. occurrence REPORTER/ Sears 6/84

DATE

LOCATION: county Chester state PA MINING DISTRICT Phoenixville

quadrangle/scale Malvern 1:24,000 PHYSIOGRAPHIC AREA Piedmont

Latitude N: 40° 05' 17" Longitude W: 75° 31' 10"

Location Comments: Charlestown Twnp., 1.5 mi SSW of Williams Corner, at elevation of 450'

PRODUCTION/ASSAYS: <1 g Cu, 1-1000 g Pb were estimated; no assay data available.

MINERALS:

ECONOMIC: Major

Minor

Trace Pyromorphite, galena, chalcopyrite

GANGUE: Major Quartz

Minor

Trace Goethite

PARAGENESIS: Hydrothermal quartz, galena, quartz, and chalcopyrite followed by supergene goethite and pyromorphite

HOST ROCK: Granitic gneiss

GEOLOGIC DESCRIPTION: According to Bascom and Stose (1938) the area is underlain by granodiorite which includes Pickering gneiss intimately intruded by gabbro and granodiorite.

REFERENCES: Bascom and Stose, 1938; Rogers, 1858; Smith, 1977.

SITE NAME: Boyertown Mine SITE NUMBER: 4-150

COMMODITY: major Fe minor DEPOSIT TYPE: Skarn

inactive

OCCURRENCE TYPE: x mine __quarry __prospect __min. occurrence REPORTER/ Sears 6/84

DATE

LOCATION: county Berks state PA MINING DISTRICT

quadrangle/scale Boyertown 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 19' 47" Longitude W: 75° 38' 28"

Location Comments: In Boyertown; 2 shafts N of Reading RR line, 2 shafts S, all within 600 ft of tracks; in area bounded by Rte. 562 on W border, Borough boundary on S border, all within 600 feet of train station.

HISTORY: First U.S. iron-making furnace was established in 1720 by Thomas Rutter, with ore presumably derived from Boyertown. At least four mines were significant producers between 1850 and 1900, but all had closed by 1908. The main mines were the Warwick, Gabel and Phoenix mines. Only minor exploration has been done since 1900.

PRODUCTION/ASSAYS: Rose (1970): No figures available, but extent of workings suggests production of roughly 106 tons of ore. Ore grades 30-50% Fe.

MINERALS:

ECONOMIC: Major Magnetite
Minor Hematite
Trace Pyrite, chalcopyrite, cuprite

GANGUE: Major Chlorite, serpentine
Minor Pyroxene, epidote
Trace

GEOLOGIC DESCRIPTION: In gross form the ore bodies were tabular, 5-20 feet thick, but locally, thicker pods several tens or more feet in diameter were encountered (Rose, 1970).

REFERENCES: d'Invilliers, 1883; Gordon, 1922; Hawkes, Wedow and Balsley, 1953; Rose, 1970; Spencer, 1908.

SITE NAME: Stonersville SITE NUMBER: 4-151

COMMODITY: major Fe minor DEPOSIT TYPE: Skarn

OCCURRENCE TYPE: __mine __quarry X prospect __min. occurrence REPORTER/ Sears 7/84

DATE

LOCATION: county Berks state PA MINING DISTRICT

quadrangle/scale Birdsboro 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 19' 47" Longitude W: 75° 48' 39"

MINERALS:

ECONOMIC: Major Magnetite
Minor
Trace

GANGUE: Major
Minor
Trace

REFERENCES: Rose, 1970; Spencer, 1908.

SITE NAME: Brower Mine SITE NUMBER: 4-152

COMMODITY: major Fe minor DEPOSIT TYPE: Skarn

OCCURRENCE TYPE: x mine __quarry __prospect __min. occurrence REPORTER/DATE Sears 6/84

LOCATION: county Berks state PA MINING DISTRICT

quadrangle/scale Boyertown 1:24,000 PHYSIOGRAPHIC AREA North edge of Triassic basin

Latitude N: 40° 19' 10" Longitude W: 75° 39' 01"

Location Comments: 1 mi SW of Boyertown

HISTORY: Ore was discovered in a post-hole. The mine was active in 1857-8, when 2000 tons of ore were extracted. It was already abandoned when Spencer visited it in 1908. Workings extended to a depth of 70 feet.

MINERALS:

ECONOMIC: Major Magnetite
Minor
Trace

GANGUE: Major
Minor
Trace

HOST ROCK: Triassic shale

GEOLOGIC DESCRIPTION: The ore layer, up to 8 feet thick, occurs at the upper contact of a diabase sill, and has a hanging wall of Triassic flinty baked shale or sandstone. The ore layer has a NE strike and dips 35-40° SE.

REFERENCES: Rose, 1970; Spencer, 1908.

SITE NAME: Snydersville SITE NUMBER: 4-153

COMMODITY: major Cu minor DEPOSIT TYPE: Hornfels?

OCCURRENCE TYPE: __mine __quarry __prospect x min. occurrence REPORTER/DATE Sears 7/84

LOCATION: county Berks state PA MINING DISTRICT

quadrangle/scale Birdsboro 1:24,000 PHYSIOGRAPHIC AREA North edge of Triassic basin

Latitude N: 40° 18' 25" Longitude W: 75° 49' 26"

REFERENCES: Eyerman, 1889; Gordon, 1922; Rose, 1970.

SITE NAME: Esterly Mine SITE NUMBER: 4-154

COMMODITY: major Fe minor DEPOSIT TYPE: Skarn

OCCURRENCE TYPE: x mine quarry prospect min. occurrence REPORTER/DATE Sears 6/84

LOCATION: county Berks state PA MINING DISTRICT

quadrangle/scale Birdsboro 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 17' 30" Longitude W: 75° 50' 55"

Location Comments: 0.65 mi N of SR 422, 1.1 mi S of Jacksonwald, 0.1 mi W of Antietam Creek

HISTORY: Opening date unknown; it was already closed in 1908 when visited by Spencer.

MINERALS:

ECONOMIC: Major Magnetite
Minor
Trace

GANGUE: Major
Minor
Trace

HOST ROCK: Triassic limy shale

GEOLOGIC DESCRIPTION: The Triassic sediments, intruded by two thick sills of diabase, are folded into a syncline. The ore lies below the lower sill, strikes E and dips about 50° N under the sill. The sediments are baked, and in places contain concentrations of garnet, hornblende, chlorite, and magnetite. The ore zone has a length of about 100-200 feet.

REFERENCES: d'Invilliers, 1883; Rose, 1970; Spencer, 1908.

SITE NAME: Gickerville SITE NUMBER: 4-155

COMMODITY: major As, Co minor DEPOSIT TYPE: Igneous-host/vein

OCCURRENCE TYPE: mine quarry prospect X min. occurrence REPORTER/DATE Sears 7/84

LOCATION: county Berks state PA MINING DISTRICT

quadrangle/scale Birdsboro 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 16' 26" Longitude W: 75° 51' 19"

Location Comments: Trap quarry on Indian Corn Cr., 3/4 mi. SW of Gickerville

MINERALS:

ECONOMIC: Major
Minor Arsenopyrite
Trace Erythrite

GANGUE: Major Calcite
Minor
Trace Prehnite, apophyllite, stilbite, heulandite, chabazite, laumontite, natrolite

HOST ROCK: Jurassic diabase

REFERENCES: Gordon, 1922; Rose, 1970.

SITE NAME: J. T. Dyer quarry SITE NUMBER: 4-156

COMMODITY: major Cu minor DEPOSIT TYPE: diabase-host/vein

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ G. R. Robinson, Jr.

DATE 02/87

LOCATION: county Berks state Pennsylvania MINING DISTRICT

quadrangle/scale Birdsboro 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 15' 54" Longitude W: 75° 51' 18"

PRODUCTION/ASSAYS: Smith and others (in press) estimate less than 20 lbs. of copper present.

MINERALS:

ECONOMIC: Major Chalcopyrite

Minor Pyrite, hematite

Trace

GANGUE: Major Chlorite, calcite

Minor

Trace

HOST ROCK: Jurassic diabase (York Haven type)

GEOLOGIC DESCRIPTION: Four 0.4-inch thick deuterically mineralized veinlets trend N20° E over a length greater than 15 feet in diabase.

REFERENCES: Smith, 1978; Smith and others, in press, USGS Bulletin 1776

SITE NAME: Glasgow SITE NUMBER: 4-157

COMMODITY: major Cu minor DEPOSIT TYPE: Sediment-host

OCCURRENCE TYPE: __mine __quarry __prospect x min. occurrence REPORTER/ Sears 7/84

DATE

LOCATION: county Montgomery state PA MINING DISTRICT

quadrangle/scale Boyertown 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 15' 56" Longitude W: 75° 39' 08"

REFERENCES: Gordon, 1922; Rose, 1970; Wherry, 1908.

SITE NAME: Bleim's Mine SITE NUMBER: 4-158

COMMODITY: major Cu minor DEPOSIT TYPE: Sediment-host

OCCURRENCE TYPE: __mine __quarry x prospect __min. occurrence REPORTER/ Sears 7/84

DATE

LOCATION: county Montgomery state PA MINING DISTRICT

quadrangle/scale Boyertown 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 15' 55" Longitude W: 75° 37' 52"

REFERENCES: Gordon, 1922; Rose, 1970.

SITE NAME: Unnamed Mine (Southeast of Hopewell) SITE NUMBER: 4-159
COMMODITY: major Fe minor DEPOSIT TYPE: Skarn
OCCURRENCE TYPE: x mine __quarry __prospect __min. occurrence REPORTER/DATE: Sears 6/84
LOCATION: county Chester state PA MINING DISTRICT
quadrangle/scale Elverson 1:24,000 PHYSIOGRAPHIC AREA Triassic basin
Latitude N: 40° 11' 49" Longitude W: 75° 45' 37"
Location Comments: 1.25 mi NE of former Pine Swamp School, 0.45 mi S of Bethesda Church, 0.25 mi E of French Creek
HISTORY: Worked about 1895.
MINERALS:
ECONOMIC: Major Magnetite
Minor
Trace
GANGUE: Major
Minor
Trace
HOST ROCK: Triassic shale and sandstone (?)
GEOLOGIC DESCRIPTION: A diabase sill may be present at depth, but projection puts the nearest sill at many thousands of feet. The source of the deposit is not known.
REFERENCES: Bascom and Stose, 1938; Rose, 1970.

SITE NAME: French Creek Mines (Kleim, Elizabeth mines) SITE NUMBER: 4-160
COMMODITY: major Fe, Cu minor Zn, Co DEPOSIT TYPE: Skarn
OCCURRENCE TYPE: x mine __quarry __prospect __min. occurrence REPORTER/DATE: Sears 6/84
LOCATION: county Chester state PA MINING DISTRICT
quadrangle/scale Pottstown 1:24,000 PHYSIOGRAPHIC AREA Triassic basin
Latitude N: 40° 11' 05" Longitude W: 75° 43' 44"
Location Comments: .4 mi SW of Harmonyville, 0.15 mi NW of end of Reading RR tracks, 0.3 mi. NE of St. Peters
HISTORY: Mine was opened before 1850, and a minor amount of iron ore was produced in the early history of the French Creek No. 1 mine. An attempt to mine a copper-rich portion of the deposit was made in 1850. Major exploitation was in 1880, 1890, and 1914-1928. Workings extend to a depth of 1350 feet.
PRODUCTION/ASSAYS: 1914-1928 production: 876,140 tons, plus perhaps 100,000 tons before 1900. Analyses of ore yield 55% Fe, 10% SiO_2, 2% Al_2O_3, 4% CaO, 1.5% MgO, 0.03% P, 0.12% Mn, 3% S, and in one sample 0.6% Cu.
MINERALS:
ECONOMIC: Major Magnetite
Minor Pyrite, chalcopyrite, hematite
Trace Pyrrhotite, bornite, chalcocite, covellite, sphalerite, malachite, azurite, chrysocolla, erythrite, molybdenite (?)
GANGUE: Major Calcite, chlorite, actinolite, talc
Minor Hydromica, garnet, epidote, augite
Trace Apatite, scapolite, byssolite, serpentine, ankerite, rhodochrosite, aragonite, gypsum, stilbite, heulandite, apophyllite
HOST ROCK: Marble lense in Precambrian biotite gneiss
GEOLOGIC DESCRIPTION: The foliation of the gneiss and the marble lense dip 45° N and are intersected at a low angle by the diabase sheet which dips north at a slightly lower angle. The ore shoot has a strike length of about 450 feet, a thickness of about 40-50 feet, plunges approximately down the dip in the upper 800 feet, and ends where the diabase cuts above the marble. Deeper ore is located to the west where the marble unit still is above the diabase. Thin pre-ore? Diabase dikes are found in the ore.
REFERENCES: Bascom and Stose, 1938; Gordon, 1922; Lapham and Geyer, 1965; Rose, 1970; Smith, 1931.

SITE NAME: Knauertown SITE NUMBER: 4-161

COMMODITY: major Fe minor DEPOSIT TYPE: Skarn

OCCURRENCE TYPE: __mine __quarry x prospect __min. occurrence REPORTER/ Sears 7/84
DATE

LOCATION: county Chester state PA MINING DISTRICT

quadrangle/scale Pottstown 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 10' 59" Longitude W: 75° 43' 36"

MINERALS:

ECONOMIC: Major Magnetite
Minor
Trace

GANGUE: Major
Minor
Trace

REFERENCES: Bascom and Stose, 1938; Rose, 1970.

SITE NAME: Pine Swamp Potential Prospect SITE NUMBER: 4-162

COMMODITY: major Fe minor DEPOSIT TYPE: Skarn/Replacement

OCCURRENCE TYPE: __mine __quarry x prospect __min. occurrence REPORTER/ Sears 6/84
DATE

LOCATION: county Chester state PA MINING DISTRICT

quadrangle/scale Elverson 1:24,000 PHYSIOGRAPHIC AREA in Piedmont

Latitude N: 40° 10' 53" Longitude W: 75° 46' 34"

Location Comments: about 1.2 mi N of Warwick and 0.25 mi S of former Pine Swam school

HISTORY: Discovered by drilling an aeromagnetic anomaly in 1950. Not yet developed. A small pit once existed in this vicinity (Bascom and Stose, 1938).

MINERALS:

ECONOMIC: Major Magnetite
Minor
Trace

GANGUE: Major
Minor
Trace

HOST ROCK: Precambrian gneiss?

GEOLOGIC DESCRIPTION: A large diabase dike dips northward under the ore. Pre-Triassic gneissic rocks are complexly folded and faulted, and the ore body may be in replaced marble beds within gneiss. The ore body is reported to have a dip of 45° N (ref.??).

REFERENCES: Gedde, 1965; Rose, 1970.

SITE NAME: Jones and Kinney Mines SITE NUMBER: 4-163

COMMODITY: major Fe minor Cu DEPOSIT TYPE: Skarn

OCCURRENCE TYPE: x mine __quarry __prospect __min. occurrence REPORTER/ Sears 6/84
DATE

LOCATION: county Berks state PA MINING DISTRICT

quadrangle/scale Elverson 1:24,000 PHYSIOGRAPHIC AREA South edge of basin

Latitude N: 40° 10' 23" Longitude W: 75° 51' 00"

Location Comments: .70 mi SSW of Joanna; one mine is 500 ft. NW of Jones Millpond, the other is 500 feet S of same pond (2nd mine is completely filled in with water).

HISTORY: Mining started about 1780, and continued until at least 1883, but had ceased by 1908. Workings consisted of a pit about 400 feet in diameter and 80 feet deep, and several shafts. A smaller pit was excavated several hundred feet to the south.

PRODUCTION/ASSAYS: Rogers, 1858: 300,000 tons of iron ore were produced by 1853. Total production of 500,000 tons estimated. During some periods Cu was produced; in 1870-75 several thousand tons of ore with 6-7% Cu was produced. Analyses for the period _____ show 44% Fe, 0.6-1.0% Cu, 0.02% P, 8-22% SiO_2, 11% total Al_2O_3 + CaO+MgO.

MINERALS:

ECONOMIC:	Major	Magnetite, pyrite, chalcopyrite
	Minor	
	Trace	Chalcocite, bornite, cuprite, native copper, malachite, cerrusite, scheelite, chrysocolla, aurichalcite
GANGUE:	Major	Calcite, aragonite
	Minor	
	Trace	Gypsum, actinolite, serpentine, talc, graphite, scheelite

HOST ROCK: Cambrian Vintage formation (dolomite and shale)

GEOLOGIC DESCRIPTION: Dolomite and shale occur as a reentrant in the north edge of a thick diabase dike. Triassic sediments bound the carbonate unit on the north, probably along a fault or an uncomformity. The diabase dips northward under the ore, and a small diabase dike occurs within the ore body. The carbonate bedding is considerably contorted, but dips generally WNW.

REFERENCES: Gordon, 1922; Hunt, 1876; Rogers, 1858; Rose, 1970; Spencer, 1908; Stose and Bascom, 1938.

SITE NAME: Hopewell Mine SITE NUMBER: 4-164

COMMODITY: major Fe minor DEPOSIT TYPE: Skarn

OCCURRENCE TYPE: x mine __quarry __prospect __min. occurrence REPORTER/ Sears 6/84
DATE

LOCATION: county Chester state PA MINING DISTRICT

quadrangle/scale Elverson 1:24,000 PHYSIOGRAPHIC AREA in Piedmont

Latitude N: 40° 10' 12" Longitude W: 75° 48' 09"

Location Comments: 1 mi NW of Warwick, on E slope of Thomas Hill, .35 mi N of Reading RR tracks, 0.7 mi N of St. Rt. 23, 0.95 mi W of St. Rt. 345, on State Game Lands No. 43.

HISTORY: Mined before 1858, in 1877-1880 and 1911-1914. Four pits were worked, plus one 200 foot shaft.

PRODUCTION/ASSAYS: 1911-1914 production: 40,000 tons. Analysis yields 37.8% Fe, 0.26% Cu, 1.496% S, 0.55% P, 23.19% SiO_2.

MINERALS:

ECONOMIC: Major Magnetite
Minor
Trace Hematite, pyrite, sphalerite

GANGUE: Major
Minor
Trace Epidote, garnet, quartz, chalcedony

HOST ROCK: Precambrian Pickering gneiss.

GEOLOGIC DESCRIPTION: Ore occurs in two tabular bodies totalling about 25 feet in thickness dipping NW at about 35°. The gneiss is intruded by a NW-striking diabase dike, and the ore extends away from this dike. Magnetic, electrical, and gravity surveys were conducted over the deposit by Shanks (1961), Ross (1963) and Ghaffer-Adly (1961).

REFERENCES: Bascom and Stose, 1938; Ghaffer-Adly, 1961; Gordon, 1922; Rogers, 1858; Rose, 1970; Ross, 1963; Shanks, 1961.

SITE NAME: Leighton Mine SITE NUMBER: 4-165

COMMODITY: major Fe minor DEPOSIT TYPE: Skarn/Replacement?

OCCURRENCE TYPE: xmine __quarry __prospect __min. occurrence REPORTER/ Sears 6/84
DATE

LOCATION: county Chester state PA MINING DISTRICT

quadrangle/scale Elverson 1:24,000 PHYSIOGRAPHIC AREA in Piedmont

Latitude N: 40° 09' 53" Longitude W: 75° 46' 38"

Location Comments: Just SE of Warwick

HISTORY: Abandoned by 1858.

PRODUCTION/ASSAYS: Rose (1970, p. 11) estimates production at 20,000 tons

MINERALS:

ECONOMIC: Major Magnetite
Minor
Trace

GANGUE: Major Garnet, hornblende, chlorite
Minor
Trace

HOST ROCK: Granitic gneiss.

GEOLOGIC DESCRIPTION: The ore is in two layers about 4 feet apart striking NE and dipping 33NW, and may have replaced marble lenses in the gneiss. The layers pinched from about 35 feet thick at the surface to a few feet thick at about 40 feet depth. The workings extend along strike for 1500 feet, but only 200 feet of this length was mined. Diabase occurs nearby.

REFERENCES: Bascom and Stose, 1938; Rogers, 1858; Rose, 1970.

SITE NAME: Warwick Mine SITE NUMBER: 4-166

COMMODITY: major Fe minor DEPOSIT TYPE: Skarn

OCCURRENCE TYPE: x mine __quarry __prospect __min. occurrence REPORTER/DATE Sears 6/84

LOCATION: county Chester state PA MINING DISTRICT

quadrangle/scale Elverson 1:24 000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 09' 41" Longitude W: 75° 46' 23"

Location Comments: .65 mi SE of town of Warwick, .10 mi due S of Rte 23, .18 mi E of Morningside cemetery on SE edge of town.

HISTORY: Mining started 1730 and stopped 1880. A shallow pit about 1/4 mi in diameter was the main working, and several shafts were also sunk.

PRODUCTION/ASSAYS: Rose (1970, p. 11) estimates 250,000 tons

MINERALS:

ECONOMIC: Major Magnetite
Minor
Trace Pyrite, chalopyrite, bornite, hematite (amounts unknown)

GANGUE: Major
Minor Include: epidote, garnet, actnolite, orthoclase, serpentine, calcite
Trace

HOST ROCK: Triassic limestone conglomerate

GEOLOGIC DESCRIPTION: Mineralized conglomerate bed is nearly flat-lying and has several gentle folds; the material mined was mostly within 60 feet of surface. A relatively narrow diabase dike cuts the conglomerate. Ore zone ranges from 1-9 ft. in thickness, with some zones locally developed to a thickness of 17 ft.

REFERENCES: Bascom and Stose, 1938; Gordon, 1922; Rogers, 1858; Rose, 1970; Spencer, 1908.

SITE NAME: Steels Mine SITE NUMBER: 4-167

COMMODITY: major Fe minor DEPOSIT TYPE: Skarn/Replacement?

OCCURRENCE TYPE: x mine __quarry __prospect __min. occurrence REPORTER/DATE Sears 6/84

LOCATION: county Chester state PA MINING DISTRICT

South edge of

quadrangle/scale Elverson 7 1/2 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 09' 35" Longitude W: 75° 46' 00"

Location Comments: about 0.6 mi N of Warwick

HISTORY: Worked before 1858, in a surface pit and along an adit.

MINERALS:

ECONOMIC: Major Magnetite
Minor
Trace Hematite

GANGUE: Major
Minor Garnet
Trace

HOST ROCK: Precambrian Pickering gneiss?

GEOLOGIC DESCRIPTION: Located on north edge of large diabase dike; ore may have developed as replacement of marble layers in gneiss.

REFERENCES: Bascom and Stose, 1938; Gordon, 1922; Rogers, 1858; Rose, 1970.

SITE NAME: South of Reading SITE NUMBER: 4-168

COMMODITY: major Cu minor DEPOSIT TYPE: Hornfels?

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ Sears 7/84
DATE

LOCATION: county Berks state PA MINING DISTRICT

quadrangle/scale Reading 1:24,000 PHYSIOGRAPHIC AREA N. of Triassic basin

Latitude N: 40° 18' 49" Longitude W: 75° 53' 25"

REFERENCES: Gordon, 1922; Rose, 1970.

SITE NAME: Raudenbush Mine SITE NUMBER: 4-169

COMMODITY: major Fe minor DEPOSIT TYPE: Skarn

OCCURRENCE TYPE: x mine __quarry __prospect __min. occurrence REPORTER/ Sears 6/84
DATE

LOCATION: county Berks state PA MINING DISTRICT
To north, outside

quadrangle/scale Reading 1:24,000 PHYSIOGRAPHIC AREA of Triassic basin

Latitude N: 40° 18' 33" Longitude W: 75° 55' 45"

Location Comments: About 2 mi S of Reading and 0.5 mi W of the Fritz Island mine

HISTORY: Active in the last half of the 19th century. Workings consist of a 280 ft. inclined shaft and several shallow shafts, plus drifts extending several hundred feet from the shaft.

PRODUCTION/ASSAYS: Said to furnish 5000 tons/yr in 1858 (ref.?); long idle by 1883. Total production <100,000 tons.

MINERALS:

ECONOMIC:	Major	Magnetite
	Minor	Hematite
	Trace	
GANGUE:	Major	Chlorite
	Minor	
	Trace	Pyroxene, stilbite

HOST ROCK: Cambrian Leithsville dolomite

GEOLOGIC DESCRIPTION: A main body of diabase extends to the margin of the Triassic shales and sandstones, and is in contact with Paleozoic rocks to the north. An altered shale forms the hanging wall of the ore. The ore body apparently is tabular and averages 12 ft in thickness, locally expanding to 30 ft, and dips 36° S. The gangue is described as "light blue rotten limestone" (ref.??).

REFERENCES: d'Invilliers, 1883; Rose, 1970; Spencer, 1908.

SITE NAME: Fritz Island Mine SITE NUMBER: 4-170

COMMODITY: major Fe minor Cu DEPOSIT TYPE: Skarn

OCCURRENCE TYPE: x mine __quarry __prospect __min. occurrence REPORTER/DATE: Sears 6/84

LOCATION: county Berks state PA MINING DISTRICT

quadrangle/scale Reading 1:24,000 PHYSIOGRAPHIC AREA North of and outside of Triassic basin

Latitude N: 40° 18' 09" Longitude W: 75° 55' 16"

Location Comments: On Fritz Island, 1.5 mi S of Reading on Schuylkill River

HISTORY: Discovered in 1850 when flood waters exposed the ore.

PRODUCTION/ASSAYS: Total yield until 1883 was 250,000 tons; mine closed soon thereafter. Analysis of ore: metallic Fe = 54%, metallic Cu = 0.25%, S = 3.4 %; SiO_2 = 7.30% (d'Invilliers, 1883).

MINERALS:

ECONOMIC:	Major	Magnetite
	Minor	Pyrite, chalcopyrite
	Trace	Malachite, azurite, bornite, galena, aurichalcite
GANGUE:	Major	Chlorite
	Minor	Stilbite, aurichalcite, calcite, serpentine, fluorite, scapolite, vesuvianite
	Trace	Garnet, zeolites, apophyllite

HOST ROCK: Cambrian Leithsville Dolomite

GEOLOGIC DESCRIPTION: The ore zone strikes approximately E, parallel to and just north of a large diabase body which cuts through Triassic sediments. Several dikes just north of the main diabase body intrude a short distance into the Paleozoic rocks.

REFERENCES: d'Invilliers, 1883; Gordon, 1922; Rose, 1970; Spencer, 1908.

SITE NAME: Grace Mine SITE NUMBER: 4-171

COMMODITY: major Fe minor Cu, Co, Ag, Au DEPOSIT TYPE: Skarn

OCCURRENCE TYPE: x mine __quarry __prospect __min. occurrence REPORTER/ Sears 6/84
DATE

LOCATION: county Berks state PA MINING DISTRICT

quadrangle/scale Morgantown 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 10' 36" Longitude W: 75° 53' 30"

Location Comments: 1.5 miles N of Morgantown, Caernarvon Twnp., 1.0 mi S. of Joanna Furnace, 1.1 mi N of interchange 22 of PA Trnpk, 1.65 mi NE of end of I-76 onto PA. Rte. 23

HISTORY: Ore body was detected by aeromagnetic survey in 1948. Production began in 1958.

PRODUCTION/ASSAYS: Estimated total ore metals (Smith, 1977, p. 271): >1000 kg Cu, Zn, Pb; according to Heyl (G. Robinson's pers. comm.) mine may have produced >106 Oz Ag. Average sulfide concentrate contains 1.41% Cu, 0.68% Co, 0.26% Ni, 0.22% Zn, 0.20% Pb. Sims (1968, p. 117) reports that pyrite contains an average of 0.51% Co. Smith (1977), Rose(1970): average ore contains 44% Fe, 1.9% S, 0.027% P, 0.14% Mn, 0.06% Cu, 0.02%Co, 16% SiO_2, 2.8% Al_2O_3, 12.3% MgO, 3.0% CaO, 0.41% K_2O, 0.20% Na_2O, 0.15% TiO_2, 90 ppm Ni, 80 ppm Zn, 60 ppm Pb.

MINERALS:		In Ore	In Diabase
ECONOMIC:	Major	Magnetite	
	Minor	Sphalerite	Sphalerite
	Trace	Galena	
GANGUE:	Major	Calcite	Prehnite, calcite, tremolite, albite
	Minor	Antigorite, pyrrhotite	Datolite, leonhardite-laumontite
	Trace		Sphene, apophyllite

PARAGENESIS: (Smith, 1977) In diabase: deformation of solidified diabase; albite, tremolite, sphalerite; prehnite, sphalerite, laumontite, apophyllite, calcite. In ore: magnetite; antigorite, pyrrhotite, dark sphalerite; and calcite. According to Sims (1968, p. 119), sphalerite and galena were probably contemporaneous with chalcopyrite.

HOST ROCK: Upper Cambrian Elbrook Formation

GEOLOGIC DESCRIPTION: The Grace mine produces magnetite and minor amounts of chalcopyrite from a large Cornwall-type deposit. Here, from less than 50 feet to more than 400 feet of dolomitic limestone has been replaced along the contact with a Triassic diabase sheet, which is "roughly tabular in shape, strikes about N60° W, dips 20°-30° NE and plunges about 20°N and 80°E" 1968, p. 113). Changes of dip in bedding of up to 45°/ft. suggests that the ore was localized along a fault. Relict bedding within both the ore and the limestone to the west of the ore slab is approximately vertical. Along the eastern ore-limestone contact, bedding strikes NE-SW and ore NS, suggesting that the structure is probably a more important control on mineralization than selective bed replacement (Smith, 1977, p. 273). The ore is typically granular, fine- to medium-grained with a fine-grained matrix.

"Although neither zinc nor lead is recovered from the ore or diabase, the occurrence is of interest as a possible genetic link between Cornwall-type iron-copper metasomatic deposits and 'Phoenixville-type' Triassic zinc-lead-copper vein deposits." (Smith, 1972, p. 275).

REFERENCES: Basu, 1974; Eugster and Chou, 1979; Lapham, 1968; Rose, 1970; Sims, 1968; Smith, 1977.

SITE NAME: Bylers Mine SITE NUMBER: 4-172

COMMODITY: major Fe minor DEPOSIT TYPE: Skarn

OCCURRENCE TYPE: x mine __quarry __prospect __min. occurrence REPORTER/ Sears 6/84
DATE

LOCATION: county Berks state PA MINING DISTRICT

quadrangle/scale Morgantown 1:24,000

Latitude N: Longitude W:

Location Comments:

HISTORY: Opened 1860, worked for 15 years.

PRODUCTION/ASSAYS: Production possibly several hundred thousand tons, based on size of pit

MINERALS:

ECONOMIC: Major Magnetite, pyrite, chalcopyrite
Minor
Trace Chalcocite, bornite, cuprite, native copper, malachite, cerrusite, chrysocolla, aurichalcite, scheelite

GANGUE: Major Calcite, aragonite
Minor
Trace Gypsum, actinolite, serpentine, talc, graphite

HOST ROCK: Cambrian limestone with shale

GEOLOGIC DESCRIPTION: Ore occurs at contact of Cambrian limestone with diabase.

REFERENCES: Bascom and Stose, 1938; Rose, 1970.

SITE NAME: Wheatfield Mine SITE NUMBER: 5-173

COMMODITY: major Fe minor DEPOSIT TYPE: Skarn

OCCURRENCE TYPE: x mine __quarry __prospect __min. occurrence REPORTER/ Sears 6/84
DATE

LOCATION: county Berks state PA MINING DISTRICT

N. of Triassic basin,
quadrangle/scale Sinking Spring 1:24,000 PHYSIOGRAPHIC AREA in Piedmont

Latitude N: 40° 17' 39" Longitude W: 76° 01' 59"

Location Comments: 1.5 mi ESE of Fritztown, and 2 mi S of Sinking Spring

HISTORY: Ore discovered in 1851; major production ceased in 1883, but sporadic activity reported up to 1906. At least 4 pits were mined.

PRODUCTION/ASSAYS: Estimate, 1883: 300,000 tons ore; analyses indicate 37-40% Fe, 20% Si, 1.5-3% pyrite, 0.1% Cu, 0.03-0.05% P in ore, with 11-19% Mg and little or no Ca.

MINERALS:

ECONOMIC: Major Magnetite
Minor
Trace Malachite, native copper

GANGUE: Major Serpentine, chlorite, quartz
Minor
Trace Fluorite, stilbite

HOST ROCK: Cambro-Ordovician limestone or dolomite overlain by slate

GEOLOGIC DESCRIPTION: The limestone in which the ore occurs is separated from the main body of limestone in the Great Valley to the north by a diabase dike 1/4 mi wide. South of the diabase, the limestone is overlain by slate (presumably Paleozoic) and this by Triassic red sandstone and shale dipping gently southward to westward. The limestone is commonly brecciated, and locally the ore cuts across the bedding. The ore to a depth of 30-40 feet is reported to be soft and earthy, possibly due to decomposition from the oxidation of pyrite. Deeper material contains unweathered magnetite.

REFERENCES: d'Invilliers, 1883; Gordon, 1922; Rose, 1970; Spencer, 1908.

SITE NAME: Ruth Mine SITE NUMBER: 5-174

COMMODITY: major Fe minor DEPOSIT TYPE: Skarn

inactive

OCCURRENCE TYPE: x mine __quarry __prospect __min. occurrence REPORTER/ Sears 6/84

DATE

LOCATION: county Berks state PA MINING DISTRICT

quadrangle/scale Sinking Spring 1:24,000 PHYSIOGRAPHIC AREA Piedmont

Latitude N: 40° 17' 30" Longitude W: 76° 03' 15"

Location Comments: About 0.5 mi SE of Fritztown, 0.75 mi W of Wheatfield mines, about 3000 ft. down valley, close to public road leading S from Fritztown.

HISTORY: Ore discovered in 1847 and mined until 1863. An incline to a depth of 190° furnished access to the ore.

PRODUCTION/ASSAYS: To 1883, about 10,000 tons ore were produced. Analysis shows: 42% Fe, 22% Si, 3% Al, 2% lime (Ca)?

MINERALS:

ECONOMIC: Major Magnetite
Minor
Trace Pyrite

GANGUE: Major Chlorite, serpentine, calcite
Minor
Trace Brucite, hydromagnesite

HOST ROCK: Cambro-Ordovician limestone & dolomite

GEOLOGIC DESCRIPTION: The mine is at the west end of the same east-west-trending block of Paleozoic limestone and shale in which the Wheatfield mines are located. A thick diabase dike (1/4 mi thick) limits the north end of this block, and Triassic sediments overlie it to the south. The diabase dike turns south just west of Ruth mine and terminates the block. Bedding is nearly flat at the mine, but the ore dips 30°SW. Limestone breccia forms the gangue and the hanging wall of the ore.

REFERENCES: d'Invilliers, 1883; Gordon, 1922; Rose, 1970; Spencer, 1908.

SITE NAME: Doner Mine SITE NUMBER: 5-175

COMMODITY: major Fe minor DEPOSIT TYPE: Skarn

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Sears 6/84

DATE

LOCATION: county Lebanon state PA MINING DISTRICT

quadrangle/scale Lebanon 1:24,000 PHYSIOGRAPHIC AREA Piedmont

Latitude N: 40° 16' 46" Longitude W: 76° 23' 03"

Location Comments: 1.5 mi NE of Cornwall, 0.45 S of SR 419, 0.5 mi SE of Cornwall Church (off SR 419)

PRODUCTION/ASSAYS: 5,000 tons of ore is reported to have been mined before 1800 from a pit 250' x 40'.

MINERALS:

ECONOMIC: Major Magnetite
Minor
Trace

GANGUE: Major
Minor
Trace

HOST ROCK: Paleozoic limestone

GEOLOGIC DESCRIPTION: Ore zone strikes E, parallel to diabase contact, and lies beneath the diabase sheet, near the north contact of thick diabase sill of the Cornwall area. Apparently deposit is a considerably weathered magnetite ore.

REFERENCES: Lapham and Gray, 1973; Rose, 1970; Spencer, 1908.

SITE NAME: Mt. Pleasant SITE NUMBER: 5-176

COMMODITY: major Fe minor DEPOSIT TYPE: Skarn

OCCURRENCE TYPE: __mine __quarry x prospect __min. occurrence REPORTER/ Sears 7/84
DATE

LOCATION: county Lebanon state PA MINING DISTRICT

quadrangle/scale Palmyra 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 16' 37" Longitude W: 76° 32' 27"

MINERALS:

ECONOMIC: Major Magnetite
Minor
Trace

GANGUE: Major
Minor
Trace

REFERENCES: Rose, 1970; Spencer, 1908.

SITE NAME: Rexmont Reservoir SITE NUMBER: 5-177

COMMODITY: major Fe minor DEPOSIT TYPE: Skarn

OCCURRENCE TYPE: __mine __quarry X prospect __min. occurrence REPORTER/ Sears 7/84
DATE

LOCATION: county Lebanon state PA MINING DISTRICT

quadrangle/scale Lebanon 1:24,000 PHYSIOGRAPHIC AREA Piedmont

Latitude N: 40° 16' 32" Longitude W: 76° 22' 12"

Location Comments: Just below one of the dams for the City of Lebanon water supply, about 2 mi east of Cornwall.

HISTORY: Discovered during reservoir construction. 500 tons of magnetite ore were removed at this time. Three holes were drilled about 1900 with no ore show.

PRODUCTION/ASSAYS: 500 tons of magnetite ore before 1900

MINERALS:

ECONOMIC: Major Magnetite
Minor
Trace

GANGUE: Major
Minor
Trace

HOST ROCK: Paleozoic limestone and associated shale

GEOLOGIC DESCRIPTION: Magnetite replaces limestone along contact of limestone with a wide diabase dike at the contact between Paleozoic and Triassic rocks.

REFERENCES: Rose, 1970; Spencer, 1908.

SITE NAME: Carper Mine SITE NUMBER: 5-178

COMMODITY: major Fe minor DEPOSIT TYPE: Hornfels/Replacement

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Sears 6/84
DATE

LOCATION: county Lebanon state PA MINING DISTRICT

quadrangle/scale Palmyra 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 16' 14" Longitude W: 76° 31' 23"

Location Comments: About 0.8 mi SE of Mt. Pleasant and US Rte 322; located as "Gravel pit" on USGS 7 1/2' quadrangle map for Palmyra.

HISTORY: Worked before 1885 via a 25 foot shaft.

PRODUCTION/ASSAYS: 1500 tons ore.

MINERALS:

ECONOMIC: Major Magnetite
Minor
Trace

GANGUE: Major
Minor
Trace

HOST ROCK: Ordovician Mill Hill slate or shale

GEOLOGIC DESCRIPTION: The ore occurs as a steeply dipping vein or replacement feature at the faulted contact between Paleozoic sediments to the north and Triassic rocks to the south. Diabase occurs in outcrop a short distance south of the mine. Mineralized rock is replaced by magnetite in a zone up to 8 feet thick.

REFERENCES: Geyer, Smith and Barnes, 1976; Rose, 1970; Spencer, 1908.

SITE NAME: Cornwall Mine SITE NUMBER: 5-179

COMMODITY: major Fe, Cu minor Au, Ag, Co DEPOSIT TYPE: Skarn

OCCURRENCE TYPE: x mine __quarry __prospect __min. occurrence REPORTER/ Sears 6/84
DATE

LOCATION: county Lebanon state PA MINING DISTRICT

quadrangle/scale Lebanon 1:24,000 PHYSIOGRAPHIC AREA Piedmont

Latitude N: 40° 16' 00" Longitude W: 76° 24' 43"

Location Comments: At Cornwall, 5 mi south of Lebanon

HISTORY: Discovered in 1732; production began soon thereafter, as open-pit mine until 1920, when underground mining became necessary. A second ore body was brought into production in 1927. Open pit was mined out in 1953, although a small extension was being stripped in 1967. Chalcopyrite has been recovered since 1912, and Cu ores were mined separately during some early periods.

PRODUCTION/ASSAYS: Total production to 1964: (est) 93, 170, 679 tons Fe ore. Production in 1964 was 6200 tons ore/day, containing 38% Fe, 0.36% S, 22.0% SiO_2. Products: Fe-concentrate, Cu-concentrate, Co-bearing pyrite concentrate. Cu-concentrate contains small amounts of Au and Ag. Pyrite furnishes Co and S.

MINERALS:

ECONOMIC:	Major	Magnetite, pyrite
	Minor	Chalcopyrite
	Trace	Hematite, native copper, bornite, chalcocite, galena, marcasite, millerite, pyrrhotite, sphalerite, wurtzite
GANGUE:	Major	Actinolite, phlogopite, chlorite, orthoclase
	Minor	Calcite, quartz, zeolite
	Trace	

HOST ROCK: Cambrian limestones, probably Buffalo Springs Formation

GEOLOGIC DESCRIPTION: The deposit lies at the north border of the Triassic province, south of the contact with Cambrian limestone of the Great Valley. Ore occurs within a slice of limestone that lies on top of a south-dipping diabase sheet 1200 feet thick. The sheet is generally conformable with bedding in the Triassic sediments, and at Cornwall cuts into the limestones. Because of recumbent folding of Paleozoic rocks, the diabase sheet is also conformable with the limestones. Thin units of "Mill Hill Slate" and "Blue conglomerate" occur above and below the ore-bearing limestone and may represent thrust-faulted slices of Ordovician Martinsburg Formation which have been considerably brecciated and deformed. The ore and gangue minerals have a banded appearance inherited from the original limestone in many localities. Measurements of two major ore bodies: Western (no. 3 mine and open pit): length along strike = 4000 ft.; length along dip = 1600 ft.; max. thickness >100 ft.; Eastern (no. 4 mine): length along strike = 3000 feet; dip length = 2400 feet; ave. thickness = 100 feet.

REFERENCES: Geyer et al, 1958; Gray and Lapham, 1961; Lapham, 1968; Rose, 1970; Spencer, 1908; Lapham and Gray, 1973.

SITE NAME: Hummelstown Mine SITE NUMBER: 5-180

COMMODITY: major Fe minor DEPOSIT TYPE: Skarn

OCCURRENCE TYPE: x mine quarry prospect min. occurrence REPORTER/ Sears 6/84
DATE

LOCATION: county Dauphin state PA MINING DISTRICT

quadrangle/scale Hershey 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 15' 16" Longitude W: 76° 40' 49"

Location Comments: 2 mi. SE of Hummelstown on the E side of Waltonville Brook

HISTORY: Active before 1886.

PRODUCTION/ASSAYS: Production known only to be several thousand tons.

MINERALS:

ECONOMIC: Major Magnetite, specular hematite
Minor Pyrite
Trace

GANGUE: Major
Minor
Trace Garnet

HOST ROCK: Triassic sandstone

GEOLOGIC DESCRIPTION: The pits are along an E-trending zone about 2500 feet in length. Because of an abrupt change in dip in sediments, the zone is probably a fault. The sandstones are considerably bleached in the area, although no igneous rocks are known to exist in the vicinity.

REFERENCES: Rose, 1970; Spencer, 1908.

SITE NAME: Glenwood Station SITE NUMBER: 5-181

COMMODITY: major Cu minor DEPOSIT TYPE: Sediment-host

OCCURRENCE TYPE: mine quarry prospect x min. occurrence REPORTER/ Sears 7/84
DATE

LOCATION: county Lancaster state PA MINING DISTRICT

quadrangle/scale Leola 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 11' 54" Longitude W: 76° 07' 51"

Location Comments: A short distance north of Glenwood Station, on the Conestoga Electric RR

MINERALS:

ECONOMIC: Major Chalcocite, cuprite
Minor
Trace Azurite, pyrolusite, malachite, tenorite

GANGUE: Major
Minor
Trace

HOST ROCK: Triassic shales

GEOLOGIC DESCRIPTION: These deposits were described by Gordon (1922, p. 203) as "hydrometamorphic concentrations."

REFERENCES: Beck, 1952; Gordon, 1922; Rose, 1970.

SITE NAME: LeCron's Copper Mine SITE NUMBER: 5-182

COMMODITY: major Cu minor DEPOSIT TYPE: Sediment-hosted

OCCURRENCE TYPE: x mine __quarry __prospect __min. occurrence REPORTER/ Sears 7/84
DATE

LOCATION: county York state PA MINING DISTRICT

quadrangle/scale Dover 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 02' 07" Longitude W: 76° 45' 36"

Location Comments: 1 1/4 mi south of Zion View, about 5 1/2 mi north of York

HISTORY: Prospected before 1883, workings include a pit. According to Stose and Jonas (1939), this deposit has no economic value.

MINERALS:

ECONOMIC: Major Malachite
Minor
Trace

GANGUE: Major
Minor
Trace

HOST ROCK: Triassic red shale and sandstone

GEOLOGIC DESCRIPTION: Rose, 1970: "The general features of most of these deposits class them with the 'Red bed copper' type of mineralization." This deposit does not seem to be related to diabase. Mineralization here consists of malachite and copper stain on fractures, and impregnated carbonized wood.

REFERENCES: Frazer, 1886; Rose, 1970; Stose and Jonas, 1939.

SITE NAME: Safe Harbor SITE NUMBER: 5-183

COMMODITY: major Zn, Ba minor DEPOSIT TYPE: Vein

OCCURRENCE TYPE: __mine __quarry __prospect x min. occurrence REPORTER/ Sears 7/84
DATE

LOCATION: county Lancaster state PA MINING DISTRICT
Safe Harbor/

quadrangle/scale Conestoga 1:24,000 PHYSIOGRAPHIC AREA Piedmont

Latitude N: 39° 55' 45" Longitude W: 76° 22' 29"

MINERALS:

ECONOMIC: Major Sphalerite
Minor Barite
Trace

GANGUE: Major
Minor
Trace

GEOLOGIC DESCRIPTION: Sphalerite in black tetrahedrons up to 12 mm in diameter occurs in calcite veins in shattered, contact-metamorphosed Vintage dolomite about 50 ft. from the east contact of a York Haven-type Jurassic diabase dike at Safe Harbor.

REFERENCES: Bates, 1959; Chapman, 1950; Rose, 1970.

SITE NAME: Reeser's Summit SITE NUMBER: 5-184
COMMODITY: major Cu minor DEPOSIT TYPE: Hornfels
OCCURRENCE TYPE: __mine __quarry __prospect x min. occurrence REPORTER/ Sears 7/84
DATE
LOCATION: county York state PA MINING DISTRICT
quadrangle/scale Steelton 1:24 000 PHYSIOGRAPHIC AREA Triassic basin
Latitude N: 40° 11' 57" Longitude W: 76° 51' 41"
HOST ROCK: Hornfelsed sediments near late-stage ferrogabbro differentiate are enriched in copper, chlorine, boron, etc.
REFERENCES: Rose, 1970.

SITE NAME: Mt. Pleasant (2 localities) SITE NUMBER: 5-185, 5-186
COMMODITY: major Fe minor DEPOSIT TYPE: Skarn
OCCURRENCE TYPE: __mine __quarry x prospect __min. occurrence REPORTER/ Sears 7/84
DATE
LOCATION: county York state PA MINING DISTRICT
quadrangle/scale Wellsville/Lemoyne 1:24,000 PHYSIOGRAPHIC AREA Triassic basin
Latitude N: See below Longitude W:
Location Comments: 2 separate localities: 1) 40° 07' 05" N, 76° 56' 56" W; 2) 40° 07' 38" N, 76° 56' 17" W
MINERALS:
ECONOMIC: Major Magnetite
Minor
Trace
GANGUE: Major
Minor
Trace
REFERENCES: Frazer, 1877; Rose, 1970; Stose and Jonas, 1939.

SITE NAME: Wellsville (2 localities) SITE NUMBER: 5-187, 5-188
COMMODITY: major Fe minor DEPOSIT TYPE: Skarn
OCCURRENCE TYPE: __mine __quarry xprospect __min. occurrence REPORTER/ Sears 7/84
DATE
LOCATION: county York state PA MINING DISTRICT
quadrangle/scale Wellsville 1:24,000 PHYSIOGRAPHIC AREA Triassic basin
Latitude N: see below Longitude W:
Location Comments: 2 localities: 1) 40° 03' 51" N, 76° 55' 49" W; 2) 40° 03' 55" N, 76° 56' 32" W
MINERALS:
ECONOMIC: Major Magnetite
Minor
Trace
GANGUE: Major
Minor
Trace
REFERENCES: Frazer, 1877; Rose, 1970; Stose and Jonas, 1939.

SITE NAME: Rossville roadcut SITE NUMBER: 5-189

COMMODITY: major Cu minor DEPOSIT TYPE: hornfels

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ G. R. Robinson, Jr.

DATE 02/87

LOCATION: county York state Pennsylvania MINING DISTRICT

quadrangle/scale Wellsville 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 04' 22" Longitude W: 76° 55' 28"

Location Comments: Northwest side of highway to Dillsberg, 0.7 mile northwest of Rossville

MINERALS:

ECONOMIC: Major Chalcocite

Minor Bornite, malachite, azurite

Trace

GANGUE: Major Epidote

Minor Andradite-grossular

Trace

HOST ROCK: Triassic calcareous siltstone

REFERENCES: Smith and O'Neill, 1973; Smith and others, in press, USGS Bulletin 1776.

Marshall, Cadwalader, Altland, Sluthower,

SITE NAME: Wellsville Comfort, Harman, Brenneman's SITE NUMBER: 5-190 through 5-196

COMMODITY: major Fe minor DEPOSIT TYPE: Skarn

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Sears 7/84

DATE

LOCATION: county York state PA MINING DISTRICT

quadrangle/scale Wellsville 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: See below. Longitude W:

Location Comments: 7 adits located in this area: 1) 40° 03' 10" N, 76° 57' 07" W

2) 40° 03' 25" N, 76° 57' 05" W 3) 40° 02' 54" N, 76° 57' 04" W

4) 40° 03' 12" N, 76° 58' 05" W 5) 40° 03' 13" N, 76° 58' 12" W

6) 40° 03' 22" N, 76° 58' 07" W 7) 40° 03' 37" N, 76° 58' 02" W.

HISTORY: Pits were dug in 1870 with the discovery of small amounts of ore

PRODUCTION/ASSAYS: A few tons of ore may have been produced. At the Comfort pit, ore contained 33.5% Fe, 0.04% S, 0.105% P.

MINERALS:

ECONOMIC: Major Magnetite

Minor Limonite

Trace

GANGUE: Major Phlogophite

Minor

Trace

HOST ROCK: Triassic sediments

GEOLOGIC DESCRIPTION: Ore occurs near contact of sediments with diabase. At Marshall pit, exposed "micaceous ore" apparently is a magnetite ore. At the Harman prospect, unusual amounts of magnetite occur in the diabase. Magnetite is apparently present at the Comfort pit, but at all localities is at least partially weathered to limonite.

REFERENCES: Frazer, 1877; Rose, 1970.

SITE NAME: Minebank Schoolhouse (2 locations) SITE NUMBER: 5-197, 5-198

COMMODITY: major Fe minor DEPOSIT TYPE: Skarn

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Sears 6/84
DATE

LOCATION: county York state PA MINING DISTRICT

quadrangle/scale Wellsville 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: See below. Longitude W:

Location Comments: 2 mi SW of Wellsville; also includes Sluthower shaft, 1.75 mi SW of Wellsville; 2 localities: 1) 40° 02' 27" N, 76° 58' 01" W; 2) 40° 01' 58" N, 76° 58' 27"W.

HISTORY: Discovered in 1805; exploitation began in 1872.

PRODUCTION/ASSAYS: 4000 tons is recorded for 1875. Assays: 58% Fe, 0.18% Cu, 4.8% Al_2O_3, 0.03% Mn, 0.76% CaO, 0.92% MgO, 0.06% S, trace P, 0.12% CO2, 9.5% insolubles.

MINERALS:

ECONOMIC: Major Magnetite
Minor
Trace

GANGUE: Major Phlogophite
Minor
Trace

HOST ROCK: Triassic limestone bed in a sequence of sandstones and shales.

GEOLOGIC DESCRIPTION: The ore zone dips about 30°NW, parallel to enclosing sediments. It is up to 7 feet thick and has been developed for 500 feet along strike. A thin diabase dike was encountered down dip. At Sluthower shaft, no ore was reported, only malachite staining.

REFERENCES: Frazer, 1877; Rose, 1970; Spencer, 1908.

SITE NAME: Roler SITE NUMBER: 5-199

COMMODITY: major Fe minor DEPOSIT TYPE: Skarn

OCCURRENCE TYPE: __mine __quarry xprospect __min. occurrence REPORTER/ Sears 7/84
DATE

LOCATION: county York state PA MINING DISTRICT

quadrangle/scale Wellsville 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 01' 21" Longitude W: 76° 55' 51"

MINERALS:

ECONOMIC: Major Magnetite
Minor
Trace

GANGUE: Major
Minor
Trace

REFERENCES: Rose, 1970; Stose and Jonas, 1939.

SITE NAME: Smith prospect SITE NUMBER: 5-200

COMMODITY: major Fe minor DEPOSIT TYPE: Skarn

OCCURRENCE TYPE: __mine __quarry x prospect __min. occurrence REPORTER/DATE: Sears 7/84

LOCATION: county York state PA MINING DISTRICT

quadrangle/scale Wellsville 1:24 000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 00' 30" Longitude W: 76° 57' 09"

MINERALS:

ECONOMIC: Major Magnetite
Minor
Trace

GANGUE: Major
Minor
Trace

REFERENCES: Frazer, 1877; Rose, 1970.

Landis/Fuller

SITE NAME: Grantham Mines Porter, Shelley SITE NUMBER: 5-201

COMMODITY: major Fe minor DEPOSIT TYPE: Skarn

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/DATE: Sears 6/84

LOCATION: county York state PA MINING DISTRICT

Mechanicsburg/Lemoyne North edge of

quadrangle/scale 1:24 000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 07' 36" Longitude W: 77° 01' 36"

Location Comments: Just SW of Grantham on S side of Yellow Beeches Creek

HISTORY: Landis opened in 1863; Porter, in 1855; Shelley, about 1872.

PRODUCTION/ASSAYS: Recorded production is 2000 tons. Analyses show 45-58% Fe, 0.12-0.27% Mn, 0-0.24% S, 0.02% P.

MINERALS:

ECONOMIC: Major Magnetite
Minor
Trace

GANGUE: Major
Minor
Trace

HOST ROCK: Triassic limestone conglomerate; possibly Cambrian limestone

GEOLOGIC DESCRIPTION: The ore body at the Landis Mine lies beneath the diabase which dips 24°NW. At Porter, a 3-6 foot bed of ore dipping 30° was mined for 25 feet along strike. At Shelley, about a 10-ft thickness of ore in limestone conglomerate underlies diabase. Several other ore zones apparently are present. The mines are very close to a fault separating diabase from Cambrian limestone.

REFERENCES: d'Invilliers, 1883; Frazer, 1877; Rose, 1970; Spencer, 1908.

SITE NAME: Dillsburg North SITE NUMBER: 5-202
COMMODITY: major Fe minor DEPOSIT TYPE: Skarn
OCCURRENCE TYPE: __mine __quarry _xprospect __min. occurrence REPORTER/ Sears 7/84
DATE
LOCATION: county York state PA MINING DISTRICT
quadrangle/scale Dillsburg 1:24,000 PHYSIOGRAPHIC AREA Triassic basin
Latitude N: 40° 07' 03" Longitude W: 77° 02' 29"
MINERALS:
ECONOMIC: Major Magnetite
Minor
Trace
GANGUE: Major
Minor
Trace
REFERENCES: Rose, 1970; Stose and Jonas, 1939.

SITE NAME: Dillsburg Mines (see HISTORY for synonyms) SITE NUMBER: 5-203 through 5-213
COMMODITY: major Fe minor DEPOSIT TYPE: Skarn
OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Sears 6/84
DATE
LOCATION: county York state PA MINING DISTRICT
quadrangle/scale Dillsburg 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 06' 40" Longitude W: 77° 00' 54"
Location Comments: 1-1.5 mi E of Dillsburg
HISTORY: Prospected about 1850, mined, 1850-1900. This summary covers the following mines in this area: McCormick (203), Smyser (209), Price (?), Cox (212), King (205), Bell (210), Grove (213), Jauss (207), Underwood (206), Longnecker (204). See next page for latitudes and longitudes.
PRODUCTION/ASSAYS: About 1,500,000 tons of ore reported for this area. Largest producers were Underwood, Longenecker, McCormick, Jauss, and Bell. Analyses show: 37-45% Fe, 0.05-0.15% Mn, 1-2% S, 0.02-0.055% P, up to 0.2% Cu and 0.5% Co.
MINERALS:
ECONOMIC: Major Magnetite
Minor Specular hematite, pyrite
Trace
GANGUE: Major Diopside, chlorite
Minor Quartz, feldspar, carbonate
Trace Garnet, epidote, datolite
HOST ROCK: Triassic Gettysburg shale
GEOLOGIC DESCRIPTION: The deposits lie in a plate of sediments about 300 feet thick, overlain by a thin diabase sheet and underlain by a thick diabase sheet. Drill cores show that within the sedimentary plate much of the limestone conglomerate has been recrystallized with no attendant alteration or replacement. Localization of the ore into beds may be due to structurally favorable control in the host rock during mineralization, or "solutions given off in different parts of a single intrusive mass may have differed materially in composition" (Harder, 1910, p. 617). The diabase sheets are nearly flat-lying and are discordant to the sediments, which dip 20-30°N. The ore occurs as tabular bodies concordant with the sedimentary bedding and individual ore bodies are rarely more than 15 feet thick.
REFERENCES: d'Invilliers, 1883; Frazer, 1877; Harder, 1910; Hotz, 1950; Neumann, 1947; Rose, 1970; Spencer, 1908.

(continued next page)

Number	Name of deposit	Latitude N	Longitude W
5-203	McCormick	40° 06' 46"	77° 00' 57"
5-204	Longnecker	40° 06' 43"	77° 00' 53"
5-205	King	40° 06' 41"	77° 00' 17"
5-206	Underwood	40° 06' 40"	77° 00' 59"
5-207	Jauss	40° 06' 39"	77° 00' 23"
5-208	Altland	40° 06' 34"	77° 00' 43"
5-209	Smyser	40° 06' 34"	77° 00' 54"
5-210	Bell	40° 06' 24"	77° 00' 43"
5-211	Logan	40° 06' 06"	77° 00' 20"
5-212	Cox	40° 06' 06"	77° 00' 13"
5-213	Grove	40° 06' 04"	77° 00' 39"

SITE NAME: Bender Mine and vicinity SITE NUMBER: 5-214

COMMODITY: major Fe minor DEPOSIT TYPE: Skarn

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Sears 6/84
DATE

LOCATION: county York state PA MINING DISTRICT

quadrangle/scale Dillsburg 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 05' 51" Longitude W: 77° 03' 01"

Location Comments: 1.25 mi SW of Dillsburg. Another old pit is located a short distance closer to Dillsburg.

HISTORY: Opened in 1849

PRODUCTION/ASSAYS: 1849, 200 tons; 1873, 40 tons. Said to have total production of 300 tons.

MINERALS:

ECONOMIC: Major Magnetite
Minor
Trace Chalcopyrite, sphalerite

GANGUE: Major Garnet, pyroxene
Minor
Trace Zeolites

HOST ROCK: Triassic sediments

GEOLOGIC DESCRIPTION: Ore occurs in limey shales, which occur as a patch within diabase. Magnetite occurs in a hard flinty greenish rock with garnet and pyroxene.

REFERENCES: Frazer, 1877; Lapham and Geyer, 1965; Rose, 1970; Spencer, 1908.

SITE NAME: Franklintown area (4 localities) SITE NUMBER: 5-215 through 5-218

COMMODITY: major Fe minor DEPOSIT TYPE: Skarn

OCCURRENCE TYPE: __mine __quarry x prospect __min. occurrence REPORTER/ Sears 7/84
DATE

LOCATION: county York state PA MINING DISTRICT

quadrangle/scale Dillsburg 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: See below Longitude W:

Location Comments: Four prospects (Spencer, 1908): 1) 40° 05' 14" N, 77° 02' 36" W; 2) 40° 04' 13" N, 77° 02' 48" W; 3) 40° 04' 12" N, 77° 03' 00" W; 4) 40° 02' 39" N, 77° 03' 00" W.

MINERALS:

ECONOMIC: Major Magnetite
Minor
Trace

GANGUE: Major
Minor
Trace

REFERENCES: Frazer, 1877; Rose, 1970; Spencer, 1908.

SITE NAME: Lichte Mine SITE NUMBER: 5-219

COMMODITY: major Fe minor DEPOSIT TYPE: Skarn?

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Sears 6/84
DATE

LOCATION: county York state PA MINING DISTRICT

quadrangle/scale Dillsburg 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 40° 01' 12" Longitude W: 77° 01' 34"

Location Comments: 5 3/16 mi SW of Wellsville, on W side of State Rte 194, 1 mi S of Bermudian Creek.

HISTORY: Opened in 1872

PRODUCTION/ASSAYS: By 1875, at least 1000 tons had been mined.

MINERALS:

ECONOMIC: Major Magnetite
Minor
Trace

GANGUE: Major
Minor
Trace

HOST ROCK: Triassic sandstone ?

GEOLOGIC DESCRIPTION: Ore is said to occur in a vein 6 ft thick. A diabase dike forms the hanging wall and dips about 45° N.

REFERENCES: Frazer, 1877; Rose, 1970.

SITE NAME: Clapper Farm SITE NUMBER: 5-220

COMMODITY: major Cu, Au minor Ag DEPOSIT TYPE: hornfels

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ G. R. Robinson, Jr.
DATE 02/87

LOCATION: county Adams state Pennsylvania MINING DISTRICT

quadrangle/scale Hampton 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 39° 59' 24" Longitude W: 77° 00' 21"

Location Comments: 115 feet west of Fish and Game Road and 0.5 mi north by road which intersects Baker's Watering Trough road

PRODUCTION/ASSAYS: Smith and others (in press) estimate occurrence as containing 20 to 200 pounds of copper.

MINERALS:

ECONOMIC: Major Bornite, chalcocite
Minor Malachite, chrysocolla
Trace Azurite

GANGUE: Major Plagioclase
Minor Andradite-grossular, mica, diopside, quartz, epidote
Trace Calcite, hornblende, chlorite

HOST ROCK: Xenolith of calcareous siltstone hornfels in Rossville-type diabase

GEOLOGIC DESCRIPTION: Mineralization occurs in a hornfels xenolith between two diabase sheets.

REFERENCES: Smith and others, in press, USGS Bulletin 1776.

SITE NAME: Center Mills (2 localities) SITE NUMBER: 5-221, 5-222

COMMODITY: major Fe minor DEPOSIT TYPE: Skarn

OCCURRENCE TYPE: __mine __quarry x prospect __min. occurrence REPORTER/ Sears 7/84
DATE

LOCATION: county Adams state PA MINING DISTRICT

quadrangle/scale Biglerville 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 1) 39° 58' 44"; 2) 39° 58' 03" Longitude W: 1) 77° 10' 39"; 2) 77° 12' 04"

Location Comments: 1) 2.9 mi NE of Center Mills, 0.8 mi S of Bermudian Dr., 2.6 mi NW of Heidlersburg; 2) about 1 mi NE of Center Mills, 0.35 mi W of Cranberry Valley, and about 1.3 mi SE of Bendersville Station.

MINERALS:

ECONOMIC: Major Magnetite
Minor
Trace

GANGUE: Major
Minor
Trace

REFERENCES: Rose, 1970; Stose, 1932; Stose and Bascom, 1929.

SITE NAME: Idaville SITE NUMBER: 5-223

COMMODITY: major Fe minor DEPOSIT TYPE: Skarn

OCCURRENCE TYPE: __mine __quarry X prospect __min. occurrence REPORTER/ Sears 7/84
DATE

LOCATION: county Adams state PA MINING DISTRICT

quadrangle/scale Biglerville 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 39° 57' 27" Longitude W: 77° 12' 24"

MINERALS:

ECONOMIC: Major

Minor Magnetite

Trace

GANGUE: Major

Minor

Trace

REFERENCES: Rose, 1970; Stose, 1932.

SITE NAME: Heidlersburg SITE NUMBER: 5-224

COMMODITY: major Cu minor DEPOSIT TYPE: Hornfels

OCCURRENCE TYPE: __mine __quarry __prospect x min. occurrence REPORTER/ Sears 6/84
DATE

LOCATION: county Adams state PA MINING DISTRICT

quadrangle/scale Biglerville 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 39° 55' 18" Longitude W: 77° 09' 38"

REFERENCES: Rose, 1970; Stose and Bascom, 1929.

SITE NAME: Stone Jug Mine SITE NUMBER: 5-225

COMMODITY: major Cu minor Au, Ag, Mo DEPOSIT TYPE: Hornfels

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Robinson 8/85
DATE

LOCATION: county Adams state PA MINING DISTRICT

quadrangle/scale Biglerville 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 39° 55' 12" Longitude W: 77° 10' 12"

Location Comments: 300 feet west of Business Route 15, 1200 feet north of Rte. 15 - S. Jug Rd. intersection

HISTORY: Opened in 1845 and worked intermittently until the late 1800s, reportedly with little financial reward. Exploratory holes reported drilled approximately 200 yards north of the abandoned northern shaft in 1955 or 1956. Four or five additional holes drilled in 1959, approximately 1/2 mile south of the prospect.

PRODUCTION/ASSAYS: Assay of a 10 pound bulk sample gave 6.0% Cu, 2.97% oz Ag/ton, 0.048 oz Au/ton, and 180 ppm Mo (Smith and Hoff, 1977, p. 14).

MINERALS:

ECONOMIC:	Major	Bornite
	Minor	Malachite
	Trace	Chalcocite, djurleite, chalcopyrite, molybdenite, powellite, azurite, chrysocolla
GANGUE:	Major	
	Minor	Andradite-grossular garnet, epidote, heulandite, stilbite
	Trace	Tourmaline

HOST ROCK: Baked calcareous sandstone within a dark hornfelsed shale, adjacent to and overlying a diabase sheet

GEOLOGIC DESCRIPTION: Mineralization appears localized in a hornfels of calcareous sandstone and dark shale. Granophyre associated with the Stone Jug diabase body may be responsible for the mineralization. Drilling by Bethlehem Steel Corporation on Stone Jug Hill indicated pyrite mineralization in fracture fillings and disseminations in granophyre. Mineralization not assayed for Cu, Ag, Au or Mo.

REFERENCES: Smith and Hoff, 1977.

SITE NAME: Hunterstown SITE NUMBER: 5-226

COMMODITY: major Cu minor Au DEPOSIT TYPE: Hornfels

OCCURRENCE TYPE: __mine __quarry x prospect __min. occurrence REPORTER/ Sears 7/84
DATE

LOCATION: county Adams state PA MINING DISTRICT

quadrangle/scale Biglerville 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 39° 53' 21" Longitude W: 77° 09' 35"

Location Comments: 1/2 mi north of Hunterstown

PRODUCTION/ASSAYS: Assay of dump sample collected by J.P. Minard in 1968 gave 1000 ppm Cu, 4.5 ppm Au, 30 ppm Bi, 50 ppm Mo, and 150 ppm Sn. Other dump samples ran nearly 1% Cu. (J.P. Minard, U.S. Geological Survey, personal (oral or written?) communication, 1968.)

MINERALS:

ECONOMIC: Major
Minor
Trace Malachite

GANGUE: Major
Minor
Trace

HOST ROCK: Hornfelsed Triassic shale; float of granophyre reported nearby by Menard.

GEOLOGIC DESCRIPTION: Shale has been altered and bleached, and locally is brecciated and has epidote veining and pink discoloration, probably due to alteration of the iron oxide in the rock (Stose and Bascom, p. 138). Some copper carbonate staining reported, but no copper ore was found on the dump (Stose and Bascom). This occurrence is considered similar to the Stone Jug Prospect.

REFERENCES: Rose, 1970; Stose, 1932; Stose and Bascom, 1929; Hoff and Smith, 1985

SITE NAME: Gettysburg SITE NUMBER: 5-527

COMMODITY: major Cu minor DEPOSIT TYPE: Hornfels

OCCURRENCE TYPE: __mine __quarry __prospect x min. occurrence REPORTER/ Sears 6/84
DATE

LOCATION: county Adams state PA MINING DISTRICT

quadrangle/scale Gettysburg 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 39° 50' 03" Longitude W: 77° 12' 46"

REFERENCES: Rose, 1970; Stose, 1932.

SITE NAME: Bonneauville (formerly Bonneaughtown) SITE NUMBER: 5-228

COMMODITY: major Cu minor _____ DEPOSIT TYPE: Stratabound/

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ Sears 7/84
DATE

LOCATION: county Adams state PA MINING DISTRICT _____

quadrangle/scale Gettysburg 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 39° 48' 40" Longitude W: 77° 08' 17"

Location Comments: about 5 mi. east of Gettysburg

PRODUCTION/ASSAYS: Approx. 2.53% Cu (Frazer, p. 301)

MINERALS:

ECONOMIC: Major Malachite
Minor
Trace

GANGUE: Major
Minor
Trace

HOST ROCK: Triassic New Red Sandstone

GEOLOGIC DESCRIPTION: General dip of beds is 30° NW. The cupriferous strata (bed, vein?) are about 1 ft thick, and the clay and rocks both above and below are impregnated with copper. Some of the accompanying rocks appear to be calcareous, and contain small prisms of transparent yar&z.

REFERENCES: Frazer, 1880; Rose, 1970.

SITE NAME: Teeter's Quarry SITE NUMBER: 5-229

COMMODITY: major Cu minor _____ DEPOSIT TYPE: Hornfels

OCCURRENCE TYPE: __mine __quarry __prospect x__min. occurrence REPORTER/ Sears 7/84
DATE

LOCATION: county Adams state PA MINING DISTRICT _____

quadrangle/scale Gettysburg 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 39° 48' 07" Longitude W: 77° 12' 43"

Location Comments: S of US Route 140, approx. 1.5 mi SE of the Gettysburg Borough boundary

MINERALS:

ECONOMIC: Major Chalcocite
Minor Malachite
Trace Bornite, chalcopyrite, chrysocolla

GANGUE: Major Garnet, calcite
Minor
Trace Chabazite, epidote, heulandite, laumontite, magnetite, natrolite, orthoclase, pyrolusite, pyrite, quartz, tremolite

HOST ROCK: Hornfelsed Triassic shale

REFERENCES: Lapham and Geyer, 1965; Rose, 1970.

SITE NAME: Cashtown (2 localities) SITE NUMBER: 5-230, 5-231
COMMODITY: major Fe minor DEPOSIT TYPE: Skarn
OCCURRENCE TYPE: __mine __quarry x prospect __min. occurrence REPORTER/ Sears 7/84
DATE
LOCATION: county Adams state PA MINING DISTRICT
quadrangle/scale Arendtsville 1:24,000 PHYSIOGRAPHIC AREA Triassic basin
Latitude N: See below. Longitude W:
Location Comments: approx. 1.1 mi NE of Cashtown, 0.1 mi S of Marsh Creek, 0.5 mi E of SR30; 2 pits, located at 39° 53' 23" N, 77° 20' 17" W and at 39° 53' 26" N, 77° 20' 31" W
MINERALS:
ECONOMIC: Major Magnetite
Minor
Trace
GANGUE: Major
Minor
Trace
REFERENCES: Newhouse, 1933; Rose, 1970; Stose and Bascom, 1929.

SITE NAME: Orrtana SITE NUMBER: 5-232
COMMODITY: major Fe minor DEPOSIT TYPE: Skarn
OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ Sears 7/84
DATE
LOCATION: county Adams state PA MINING DISTRICT
quadrangle/scale Fairfield 1:24,000 PHYSIOGRAPHIC AREA Triassic basin
Latitude N: 39° 50' 38" Longitude W: 77° 18' 24"
MINERALS:
ECONOMIC: Major Magnetite
Minor
Trace
GANGUE: Major
Minor
Trace
REFERENCES: Rose, 1970; Stose, 1932.

SITE NAME: Carr Hill SITE NUMBER: 5-233
COMMODITY: major Fe minor DEPOSIT TYPE: Skarn
OCCURRENCE TYPE: __mine __quarry xprospect __min. occurrence REPORTER/ Sears 7/84
DATE
LOCATION: county Adams state PA MINING DISTRICT
quadrangle/scale Fairfield 1:24,000 PHYSIOGRAPHIC AREA Triassic basin
Latitude N: 39° 49' 27" Longitude W: 77° 18' 34"
Location Comments: 0.65 mi SE of Knoxlyn, approx. 500 ft. N of the Knoxlyn Rd which runs NW-SE toward county Rte. 116, at approx. 575' elevation
MINERALS:
ECONOMIC: Major Magnetite
Minor
Trace
GANGUE: Major
Minor
Trace
REFERENCES: Rose, 1970; Stose, 1932; Stose & Bascom, 1929.

SITE NAME: Fairfield (Mell's mine) SITE NUMBER: 5-234

COMMODITY: major Cu, Fe minor DEPOSIT TYPE: Skarn

OCCURRENCE TYPE: __mine __quarry x prospect __min. occurrence REPORTER/ Sears 7/84
DATE

LOCATION: county Adams state PA MINING DISTRICT

quadrangle/scale Fairfield 1:24 000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 39° 48' 43" Longitude W: 77° 20' 50"

Location Comments: about 1.1 mi NE of Fairfield and 0.3 mi E of Bullfrog Road

MINERALS:

ECONOMIC: Major Malachite
Minor Specular hematite
Trace

GANGUE: Major
Minor
Trace

HOST ROCK: Hornfels of Triassic siltstone/shale

GEOLOGIC DESCRIPTION: The deposit occurs as more or less stratabound lenses and the lenses are connected by unmineralized stringers.

REFERENCES: Frazer, 1880; Rose, 1970; Stose, 1932; Stose and Bascom, 1932.

SITE NAME: McNair Farm SITE NUMBER: 5-235

COMMODITY: major Fe minor DEPOSIT TYPE: Skarn

OCCURRENCE TYPE: __mine __quarry X prospect __min. occurrence REPORTER/ Sears 7/84
DATE

LOCATION: county Adams state PA MINING DISTRICT

quadrangle/scale Fairfield 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 39° 46' 38" Longitude W: 77° 21' 30"

MINERALS:

ECONOMIC: Major Magnetite
Minor
Trace

GANGUE: Major
Minor
Trace

REFERENCES: Rose, 1970; Stose, 1932.

SITE NAME: Boyd's barite occurrence SITE NUMBER: 6-236

COMMODITY: major Ba minor DEPOSIT TYPE: Vein

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ Robinson 8/85
DATE

LOCATION: county Montgomery state MD MINING DISTRICT

quadrangle/scale Germantown 1:24,000 PHYSIOGRAPHIC AREA basin

Latitude N: 39° 10' 59" Longitude W: 77° 19' 37"

Location Comments: 0.73 miles southwest of Boyds, 0.37 miles south of the Baltimore and Ohio Railroad, 0.70 miles southwest of the intersection of SR 117 and SR 121.

MINERALS:

ECONOMIC: Major Barite
Minor
Trace

GANGUE: Major
Minor Quartz
Trace

HOST ROCK: Jurassic diabase

GEOLOGIC DESCRIPTION: Barite float at the soil surface is found at this location. Occurrence appears to be related to a barite vein at the northern edge of the Boyds Jurassic diabase sheet.

REFERENCES: Information from Rockville Crushed Stone, Inc., 1984.

SITE NAME: Dawsonville Gold Occurrence (2 locations) SITE NUMBER: 6-237, 6-238

COMMODITY: major Au minor DEPOSIT TYPE: Placer

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ Robinson 8/85
DATE

LOCATION: county Montgomery state MD MINING DISTRICT

quadrangle/scale Germantown 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: see below Longitude W:

Location Comments: Two localities: 1) 39° 07' 54" N, 77° 20' 06" W; 2) 39° 07' 42" N, 77° 20' 07" W. Gold was panned from two localities in a small creek leading north into Great Seneca Creek, 1.6 km west of Dawsonville (J.F. Windolph, Jr., U.S. Geological Survey, personal communication, 1975).

MINERALS:

ECONOMIC: Major
Minor
Trace Native gold, magnetite

GANGUE: Major
Minor
Trace

GEOLOGIC DESCRIPTION: Gold in small flakes, and in nuggets up to wheat-grain size, and magnetite octahedra up to 1 cm across have been panned from a stream gravel derived from Triassic conglomerate (Bernstein, 1980, p. 58, locality 27).

REFERENCES: Bernstein, 1980.

SITE NAME: Seneca Creek Cinnabar Occurrence SITE NUMBER: 6-239

COMMODITY: major Hg minor DEPOSIT TYPE: Placer

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/DATE: Robinson 8/85

LOCATION: county Montgomery state MD MINING DISTRICT

quadrangle/scale Seneca 1:24,000 PHYSIOGRAPHIC AREA

Latitude N: 39° 06' 11" Longitude W: 77° 20' 38"

Location Comments: In Seneca Creek between Dawsonville and Seneca, Maryland.

MINERALS:

ECONOMIC: Major Cinnabar
Minor
Trace

GANGUE: Major
Minor
Trace

GEOLOGIC DESCRIPTION: Cinnabar reported from Seneca Creek between Dawsonville and Seneca (J.F. Windolph, Jr., U.S. Geological Survey, personal communication with Lawrence Bernstein, 1980).

REFERENCES: Bernstein, 1980.

SITE NAME: Sugarland Copper Mine SITE NUMBER: 6-240

COMMODITY: major Cu minor DEPOSIT TYPE: Stratabound/replacement

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/DATE: Froelich 7/84

LOCATION: county Montgomery state MD MINING DISTRICT

quadrangle/scale Sterling 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 39° 05' 58" Longitude W: 77° 23' 52"

Location Comments: 50 feet E of private farm road, 500 feet S of Sugarland Road, 2400 feet W of junction of Sugarland Road and Hughes Road, and about 2.5 mi N of Potomac River

MINERALS:

ECONOMIC: Major Chalcocite, native copper
Minor Malachite
Trace

GANGUE: Major
Minor
Trace

HOST ROCK: Triassic sandstones and siltstones

GEOLOGIC DESCRIPTION: Ore occurs in interbedded sequence of fine-grained gray sandstone and red-brown sandstones/siltstones of Upper Triassic Balls Bluff formation. Unit strikes N5° E and dips 26° W. Copper minerals reported in float around pits.

REFERENCES: Froelich and Leavy, 1981; Froelich, 1975; Lee, 1979; John Windolph (USGS, Reston), pers. comm., 1975.

SITE NAME: Waterford Gold Occurrence SITE NUMBER: 6-241

COMMODITY: major Au minor DEPOSIT TYPE: Placer

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ Robinson 8/85

LOCATION: county Loudoun state VA MINING DISTRICT

quadrangle/scale Waterford 1:24,000 PHYSIOGRAPHIC AREA basin

Latitude N: 39° 07' 57" Longitude W: 77° 33' 05"

Location Comments: Sample taken from south part of roadcut on SR 15 south of bypass.

PRODUCTION/ASSAYS: Semi-quantitative spectrographic analysis of ore sample collected (see below) by J.P. Minard (1968 notes) yielded 0.7 ppm Au in this sample.

MINERALS:

ECONOMIC: Major

Minor Gold

Trace

GANGUE: Major

Minor

Trace

HOST ROCK: Triassic limestone conglomerate

GEOLOGIC DESCRIPTION: Information from a grab sample of Triassic limestone conglomerate containing limestone cobbles.

REFERENCES: Minard, J.P. (U.S. Geological Survey, personal communication, 1984).

SITE NAME: Goose Creek Copper Mine SITE NUMBER: 6-242

COMMODITY: major Cu minor DEPOSIT TYPE: hornfels/replacement

OCCURRENCE TYPE: __mine __quarry X prospect __min. occurrence REPORTER/ Froelich 7/84

DATE

LOCATION: county Loudoun state VA MINING DISTRICT

quadrangle/scale Leesburg 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 39° 05' 53" Longitude W: 77° 30' 01"

Location Comments: From the west side of the bridge on Rte. 7 over Goose Creek (3.6 mi E of the center of the town of Leesburg), 1.1 mi N along a jeep trail to first tributary west, and west approx. 1000' to overgrown pits.

HISTORY: "Opened about 1880; little or no actual copper production resulted." (Roberts, 1928, p. 135) "A few elongate depressions that may have been prospect trenches were found". (Toewe, 1966, p. 25)

MINERALS:

ECONOMIC: Major

Minor Malachite

Trace

GANGUE: Major

Minor

Trace

HOST ROCK: Hornfelsed Triassic siltstones

GEOLOGIC DESCRIPTION: Ore occurs in a siltstone hornfels, 1000 feet north of contact with a diabase sheet.

REFERENCES: Bernstein, 1980; Froelich and Leavy, 1981; Luttrell, 1966; Roberts, 1928; Toewe, 1966; Weed, 1911.

SITE NAME: Sugarland Run Prospect (Sterling Prospect) SITE NUMBER: 6-243

COMMODITY: major Cu minor Ag DEPOSIT TYPE: Stratabound/ replacement

OCCURRENCE TYPE: __mine __quarry X prospect __min. occurrence REPORTER/ DATE Robinson 8/85

LOCATION: county Loudoun state VA MINING DISTRICT

quadrangle/scale Seneca 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 39° 02' 22" Longitude W: 77° 21' 46"

REFERENCES: Bernstein, 1980.

SITE NAME: Copper locality, Sterling SITE NUMBER: 6-244

COMMODITY: major Cu minor DEPOSIT TYPE: Stratabound/ replacement

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ DATE Sears 8/85

LOCATION: county Loudoun state VA MINING DISTRICT

quadrangle/scale Sterling 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 39° 00' 20" Longitude W: 77° 26' 05"

Location Comments: In roadcut on the east side of Rt. 28, 4 km south of Rt. 7 and 160 m north of Rt. 625, near Sterling, Virginia.

MINERALS:

ECONOMIC: Major

Minor Malachite, pseudomalachite, chrysocolla

Trace Manganese oxides

GANGUE: Major

Minor

Trace

HOST ROCK: Triassic siltstones, shales, arkoses

GEOLOGIC DESCRIPTION: Secondary copper minerals here occur in red to gray Triassic sediments, associated with and commonly replacing plant fossils.

REFERENCES: Bernstein, 1980.

SITE NAME: Theodora Copper Mine SITE NUMBER: 6-245

COMMODITY: major Cu minor DEPOSIT TYPE: hornfels

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Froelich 7/84
DATE

LOCATION: county Fairfax state VA MINING DISTRICT

quadrangle/scale Herndon 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 38° 56' 59" Longitude W: 77° 25' 23"

Location Comments: 800 feet SSW along fenceline from Coppermine Road (Rte. 665), 800 feet NNW from Mt. Pleasant Church

HISTORY: "The mine was apparently opened in 1880 (Hotchkiss, 1880) and a smelter was created on the site. The mine was operated for a short time, however, and no reference to it can be found after the 1880 article." (Bernstein, 1976, p. 104)

MINERALS:

ECONOMIC: Major Chalcocite, chalcopyrite, hematite (specularite)
Minor Malachite, chrysocolla, azurite, libethanite, pseudomalachite
Trace Pyrite

GANGUE: Major Epidote, quartz
Minor
Trace

HOST ROCK: Hornfelsed Triassic siltstone and meta-arkosic sandstones

GEOLOGIC DESCRIPTION: The copper mine is situated in a zone of contact metamorphosed shale and sandstone which strikes N5° E and dips 10° W and grades westward into unmetamorphosed red-brown sandstone and siltstone and is in contact with diabase about 100 meters to the east. The diabase/hornfels contact trends northerly, and this is the west side of the Herndon saucer-shaped intrusive.

REFERENCES: Bernstein, 1980; Froelich and Leavy, 1981; Froelich, 1976; Hotchkiss, 1884; Luttrell, 1966.

SITE NAME: Spencer Farm SITE NUMBER: 6-246

COMMODITY: major Cu minor DEPOSIT TYPE: hornfels/replacement

OCCURRENCE TYPE: __mine __quarry X prospect __min. occurrence REPORTER/ Robinson 8/85
DATE

LOCATION: county Fairfax state VA MINING DISTRICT

quadrangle/scale Herndon 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 38° 54' 17" Longitude W: 77° 28' 35"

MINERALS:

ECONOMIC: Major Chalcocite, malachite
Minor
Trace

GANGUE: Major
Minor
Trace

HOST ROCK: Hornfels of Triassic clastic sedimentary rock

GEOLOGIC DESCRIPTION: Chalcocite is disseminated in carbonate veinlets in a hornfels of Triassic clastic sedimentary rocks in the vicinity of a diabase sheet.

REFERENCES: Bernstein, 1980; Luttrell, 1966, p. 121

SITE NAME: Chantilly Prospect SITE NUMBER: 6-247

COMMODITY: major Cu minor DEPOSIT TYPE: hornfels/replacement

OCCURRENCE TYPE: __mine __quarry X prospect __min. occurrence REPORTER/ Robinson 8/85
DATE

LOCATION: county Fairfax state VA MINING DISTRICT

quadrangle/scale Herndon 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 38° 53' 20" Longitude W: 77° 25' 10"

Location Comments: Site is currently the location of a shopping center in Chantilly. Mineralized rock is present in rear wall of excavation.

HISTORY: Abandoned prospect was rediscovered by R.S. Cannon in 1947.

MINERALS:

ECONOMIC: Major Chalcocite, bornite
Minor Malachite
Trace

GANGUE: Major
Minor
Trace

HOST ROCK: Hornfels of Triassic clastic sedimentary rock

REFERENCES: Bernstein, 1980; Luttrell, 1966.

SITE NAME: Cub Run Copper Occurrence SITE NUMBER: 6-248

COMMODITY: major Cu minor DEPOSIT TYPE: hornfels/replacement

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ Froelich 7/84
DATE

LOCATION: county Fairfax state VA MINING DISTRICT

quadrangle/scale Herndon 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 38° 52' 54" Longitude W: 77° 28' 15"

Location Comments: 0.7 km W of junction of U.S. Rts. 50 and 28. South on Lee Road (State Rt. 661) 3.3 km on roadcut along west bank of Cub Run on west side of road, 0.1 km south of Bench Mark 232 and 0.35 km E of Rock Hill.

MINERALS:

ECONOMIC: Major Malachite, specular hematite
Minor Limonite
Trace

GANGUE: Major Potassium feldspar, clays
Minor Epidote
Trace Quartz

HOST ROCK: Hornfelsed Triassic coarse-grained arkose interbedded with siltstones and shales

GEOLOGIC DESCRIPTION: The mineralized occurrence is in a metamorphosed sedimentary sequence striking N 10-20° W and dipping 25° W, about .35 km due east of Rock Hill diabase sheet contact. Specularite and malachite impregnate a very coarse-grained recrystallized arkose (mainly potassium feldspar, in part altered to clays) from 0.5 to 1.0 meters thick that appears to be a channel-fill deposit in siltstone and shale, now metamorphosed to hornfels. Several other similar occurrences are within 1-3 km of the Cub Run occurrence but are less well exposed.

REFERENCES: Eggleton, 1975; Volckman, unpublished, 1977.

SITE NAME: Chantilly Pipeline Excavation SITE NUMBER: 6-249

COMMODITY: major Cu minor DEPOSIT TYPE: Stratabound/ replacement

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ DATE Sears 8/85

LOCATION: county Fairfax state VA MINING DISTRICT

quadrangle/scale Herndon 1:24,000 PHYSIOGRAPHIC AREA Triassic lowland

Latitude N: 38° 52' 50" Longitude W: 77° 25' 08"

Location Comments: Just southeast of Tabscott Road, about 1.5 km south of Rt. 50.

PRODUCTION/ASSAYS: Spectrographic analysis (D'Agostino and Hanshaw, 1970): 20,000 ppm Cu, 50 ppm Zr, 200 ppm V, 1000 ppm Ba, 100 ppm Sr, 100 ppm La, 50 ppm Ag, 30 ppm Ni; fire assay detected 0.09 ppm Au.

MINERALS:

ECONOMIC: Major
Minor Malachite, azurite
Trace Barite, pyrite, chalcopyrite

GANGUE: Major
Minor
Trace

HOST ROCK: Triassic shale and sandstone

GEOLOGIC DESCRIPTION: The concentrations of copper minerals and barite are associated with carbonized plant fossils.

REFERENCES: Bernstein, 1980; D'Agostino and Hanshaw, 1970.

SITE NAME: Fairfax Quarry SITE NUMBER: 6-250

COMMODITY: major Cu minor DEPOSIT TYPE: diabase-host/vein

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ DATE Robinson 8/85

LOCATION: county Fairfax state VA MINING DISTRICT

quadrangle/scale Manassas 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 38° 49' 33" Longitude W: 77° 29' 19"

Location Comments: Quarry near Bull Run off U.S. Routes 29-211, four miles east of Centreville.

MINERALS:

ECONOMIC: Major Bornite
Minor
Trace

GANGUE: Major
Minor
Trace

HOST ROCK: Jurassic diabase

GEOLOGIC DESCRIPTION: Bornite occurs in fractures and veins in diabase at quarry.

REFERENCES: Dietrich, 1953; Luttrell, 1966.

SITE NAME: Bull Run Gold Occurrence SITE NUMBER: 6-251

COMMODITY: major Au minor DEPOSIT TYPE: placer

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/DATE Robinson 8/85

LOCATION: county Fairfax state VA MINING DISTRICT

quadrangle/scale Manassas 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 38° 48' 27" Longitude W: 77° 29' 23"

MINERALS:

ECONOMIC: Major Native gold
Minor
Trace

GANGUE: Major
Minor
Trace

GEOLOGIC DESCRIPTION: Small nuggets and flakes of gold were panned from stream gravels at this location by Lawrence Bernstein (see reference).

REFERENCES: Bernstein, 1980.

SITE NAME: Manassas Quarry SITE NUMBER: 6-252

COMMODITY: major Ba minor DEPOSIT TYPE: vein

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/DATE Robinson 8/85

LOCATION: county Prince William state VA MINING DISTRICT

quadrangle/scale Independent Hill 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 38° 43' 43" Longitude W: 77° 28' 27"

Location Comments: Old shale quarry, 2 miles south of Manassas

MINERALS:

ECONOMIC: Major Barite
Minor
Trace

GANGUE: Major
Minor
Trace

HOST ROCK: Triassic siltstone/shale

GEOLOGIC DESCRIPTION: Barite occurs in 3/4 inch-wide fissure veins in Triassic siltstone and shale.

REFERENCES: Luttrell, 1966; Roberts, 1928.

SITE NAME: Brentsville Copper Prospect SITE NUMBER: 6-253

COMMODITY: major Cu minor DEPOSIT TYPE: sediment-hosted

OCCURRENCE TYPE: __mine __quarry X prospect __min. occurrence REPORTER/ Sears 7/85
DATE

LOCATION: county Prince William state VA MINING DISTRICT

quadrangle/scale Independent Hill 1:24,000 PHYSIOGRAPHIC AREA Triassic lowland

Latitude N: 38° 41' 21" Longitude W: 77° 29' 56"

Location Comments: Two small prospect pits were opened approximately 200 meters southeast of the old courthouse at Brentsville.

MINERALS:

ECONOMIC: Major
Minor Malachite, azurite
Trace

GANGUE: Major
Minor
Trace

HOST ROCK: Triassic red shale

GEOLOGIC DESCRIPTION: Roberts (1928) reported large amounts of malachite and azurite in red shales here, and in a nearby sandstone quarry. No diabase dikes are evident in the vicinity.

REFERENCES: Bernstein, 1980; Roberts, 1928.

SITE NAME: St. Stephens Barite Mine SITE NUMBER: 6-254

COMMODITY: major Ba minor DEPOSIT TYPE: Vein

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Froelich 7/84
DATE

LOCATION: county Fauquier state VA MINING DISTRICT Fauquier County

quadrangle/scale Catlett 1:24,000 PHYSIOGRAPHIC AREA Piedmont

Latitude N: 38° 40' 49" Longitude W: 77° 40' 08"

Location Comments: 100-150 meters N of the cemetery of St. Stephens Church, at the junction of Rtes. 667 and 663. From first farmhouse S of Rte. 667 on E. side of 603, take path to NW for several hundred meters. Mine workings are at end of path, on north side.

HISTORY: Operated for a short time just after the Civil War.

PRODUCTION/ASSAYS: 2200 short tons produced (Edmundson, 1938, p. 51).

MINERALS:

ECONOMIC: Major Barite
Minor
Trace

GANGUE: Major
Minor Quartz, calcite, dolomite
Trace

HOST ROCK: Triassic hornfelsed sediments and diabase dike

GEOLOGIC DESCRIPTION: Situated on ENE flank of a 200-250' wide diabase dike that trends N30° W for 4.3 miles, approximately 1.5 mi from its southeast end. The dike is decomposed, but barite float is associated with fine to microcrystalline weathered diabase and poorly exposed gray siltstone hornfels derived from Balls Bluff (Upper Triassic) siltstone, which has a NE regional strike and dips 19° NW.

REFERENCES: Bernstein, 1980; Edmundson, 1938; Froelich and Leavy, 1981; Lee, 1979; Luttrell, 1966; Roberts, 1928.

SITE NAME: Calverton Wurtzite Occurrence SITE NUMBER: 6-255

Stratabound/

COMMODITY: major minor Zn DEPOSIT TYPE: replacement

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ Robinson 8/85

DATE

LOCATION: county Fauquier state VA MINING DISTRICT

quadrangle/scale Catlett 1:24 000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 38° 39' 10" Longitude W: 77° 40' 39"

Location Comments: Mineralized outcrop is on south bank of Cedar Run, approximately 300 feet east of Rt. 603 crossing of Cedar Run, 1.5 miles north-northwest of Calverton

HISTORY: Mineral grain from site, supplied by Dr. Pamela Gore, Emory University, was identified at U.S. Geological Survey as wurtzite. Site examination by G.R. Robinson in 1984 located wurtzite mineralization.

PRODUCTION/ASSAYS: Semi-quantitative spectrographic analysis af average rock from mineralized location yields 6200 ppm zinc.

MINERALS:

ECONOMIC:	Major	
	Minor	Wurtzite
	Trace	Pyrite, chalcopyrite?
GANGUE:	Major	Ferrodolomite
	Minor	Calcite
	Trace	

PARAGENESIS: Wurtzite replaces carbonate intraclasts along base of limestone layers, and locally replaces carbonate cement in the vicinity of tiny fractures in the limestone. A set of thin quartz veins postdates wurtzite mineralization.

HOST ROCK: Gray silty limestone

GEOLOGIC DESCRIPTION: Wurtzite mineralization occurs locally along the base of thin sandy limestone beds in the outcrop section. The wurtzite selectively replaces carbonate intraclasts and, locally, carbonate cement in the vicinity of tiny fractures in the limestone. Mineralization appears to be related to the movement of fluids along preferentially permeable limestone beds. Trace amounts of pyrite and chalcopyrite (?) mineralization also occur along the base of these units.

REFERENCES: Robinson, G.R. (U.S. Geological Survey, Reston, Va.), field work, 1984.

SITE NAME: Cedar Run Barite Mine SITE NUMBER: 6-256

COMMODITY: major Ba minor DEPOSIT TYPE: Vein

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Froelich 7/84
DATE

LOCATION: county Prince William state VA MINING DISTRICT Fauquier Co., Va.

quadrangle/scale Nokesville 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 38° 37' 32" Longitude W: 77° 34' 41"

Location Comments: On south side of Cedar Run about 500 ft., in floodplain pasture about 150 ft. east of Fauquier County line. Rte. 806, 4.8 km SE of Catlett, turn left on Rte. 640, 3.2 km to last farm. Pits are 100 meters east of barns.

HISTORY: Small deposit was operated in Fauquier County, Virginia near the county line, in 1845. Mine was reportedly flooded when Cedar Run overflowed and filled mine in late 1880s or 1903. This was the largest barite producer in the Culpeper basin. Workings originally consisted of an 80-meter-long inclined adit or shaft, trenches, and 3 shafts, each 30 meters deep.

PRODUCTION/ASSAYS: Probably several thousand tons produced. "Much good ore remained when the mine closed in 1903, but problems with ground water and with occasional flooding from Cedar Run could not be overcome profitably." (Bernstein, 1980, p. 112.)

MINERALS:

ECONOMIC:	Major	Barite
	Minor	Chalcopyrite (rare grains in barite)
	Trace	Galena, malachite, pyrite
GANGUE:	Major	Quartz, calcite
	Minor	Dolomite?
	Trace	

PARAGENESIS: Bernstein (1980, p. 112): 1. brecciation of shale and cementation by fine-grained calcite; 2. crystallization of coarse, tabular barite in fissures; 3. crystallization of fine-grained layered barite; 4. further brecciation of shale and barite veins; 5. crystallization of calcite and small amounts of fine-grained quartz, and some replacement of barite.

HOST ROCK: Slightly hornfelsed Triassic Balls Bluff siltstones

GEOLOGIC DESCRIPTION: Ore occurs in a red-brown siltstone of the Balls Bluff Formation, in part slightly hornfelsed, with float locally brecciated. Float material at pits and dumps suggest deposit occurs in fissure veins, replacement veins, and breccia zones. Orientation of vein unknown, but dike of diabase trending NNE is on line with abandoned pits. "Evidence tends to indicate crystallization within a fault zone." (Bernstein, 1980, p. 112.)

REFERENCES: Bernstein, 1980; Edmundson, 1938; Froelich and Leavy, 1981; Lee, 1979; , Luttrell 1966.

SITE NAME: Botts barite occurence SITE NUMBER: 6-257

COMMODITY: major Ba minor DEPOSIT TYPE: vein

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ Robinson 8/85

DATE

LOCATION: county Fauquier state VA MINING DISTRICT

quadrangle/scale Midland 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 38° 34' 01" Longitude W: 77° 39' 32"

MINERALS:

ECONOMIC: Major Barite

Minor

Trace

GANGUE: Major

Minor

Trace

HOST ROCK: Triassic shale

GEOLOGIC DESCRIPTION: The barite appears to be localized in a fracture zone in Triassic shale (Bull Run shale), trending northeast.

REFERENCES: Edmundson, 1938; Froelich, A.J., 1984 (personal communication); Luttrell, 1966.

SITE NAME: Elk Run Mine SITE NUMBER: 6-258

COMMODITY: major Cu minor DEPOSIT TYPE: fault zone/vein

OCCURRENCE TYPE: __mine __quarry X prospect __min. occurrence REPORTER/ Robinson 8/85

DATE

LOCATION: county Fauquier state VA MINING DISTRICT

quadrangle/scale Midland 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 38° 33' 21" Longitude W: 77° 40' 12"

MINERALS:

ECONOMIC: Major Malachite

Minor

Trace

GANGUE: Major

Minor

Trace

HOST ROCK: Triassic siltstone/shale

GEOLOGIC DESCRIPTION: Malachite mineralization occurs on weathering surfaces in a zone of sheared siltstone/shale in red siltstones. The sheared siltstone is green-gray and oriented in a narrow steeply-dipping fracture which cuts shallowly dipping red siltstones.

REFERENCES: Lonsdale, 1927; Luttrell, 1966.

SITE NAME: Bealeton Mine SITE NUMBER: 6-259

COMMODITY: major Cu minor DEPOSIT TYPE: hornfels/replacement

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Robinson 8/85
DATE

LOCATION: county Fauquier state VA MINING DISTRICT

quadrangle/scale Midland 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 38° 33' 15" Longitude W: 77° 43' 54"

Location Comments: 2.25 miles southeast of Bealeton and 100 yards north of State Rt. 17

HISTORY: First worked in 1840

MINERALS:

ECONOMIC: Major Pyrite, chalcopyrite
Minor
Trace

GANGUE: Major
Minor
Trace

HOST ROCK: Hornfels of Triassic siltstone/shale

GEOLOGIC DESCRIPTION: Pyrite and chalcopyrite are disseminated and occur in veinlets in hornfels of Triassic siltstone shale located between two diabase dikes.

REFERENCES: Luttrell, 1996; Roberts, 1928.

SITE NAME: Gear Barite Mine SITE NUMBER: 6-260

COMMODITY: major Ba minor DEPOSIT TYPE: Vein

OCCURRENCE TYPE: __mine __quarry X prospect __min. occurrence REPORTER/ Froelich 7/84
DATE

LOCATION: county Fauquier state VA MINING DISTRICT

quadrangle/scale Midland 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 38° 32' 45" Longitude W: 77° 43' 32"

Location Comments: 2100 feet N70°E of U.S. Rte. 7 bridge crossing of Browns Run. Take Rte. 644 S of bridge for 2800 feet; cleared fields and pasture 200 feet S contain one trench 50 meters long and two pits (now caved in) with barite float.

PRODUCTION/ASSAYS: Unknown, but size of pits suggests some production.

MINERALS:

ECONOMIC: Major Barite
Minor
Trace

GANGUE: Major Quartz, hornfels breccia
Minor
Trace Mica

HOST ROCK: Hornfelsed Triassic siltstones and sandstones

GEOLOGIC DESCRIPTION: Ore occurs in brecciated, dark gray to black siltstones and sandstones, which have been altered to hornfels by a diabase sheet. Hornfels strikes N10° E and dips 19° W. Prospects occur near contact with red beds, but hornfels is very dark and brecciated as much as 1200 feet WNW of the contact with the diabase sheet. See the geologic description for the Kemper Mine (261) for details.

REFERENCES: Edmundson, 1938; Froelich and Leavy, 1981; Luttrell, 1966.

SITE NAME: Kemper Barite Mine SITE NUMBER: 6-261

COMMODITY: major Ba minor DEPOSIT TYPE: Vein

OCCURRENCE TYPE: __mine __quarry X prospect __min. occurrence REPORTER/ Froelich 7/84
DATE

LOCATION: county Fauquier state VA MINING DISTRICT

quadrangle/scale Midland 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 38° 32' 29" Longitude W: 77° 43' 30"

Location Comments: 2000 feet S60° E of U.S. Rte. 17 bridge crossing of Browns Run. 1.5 mi N of town of Lois, Va. Abandoned mines, prospect pits and float in cleared fields on S side of west-flowing tributary of Browns Run.

PRODUCTION/ASSAYS: Unknown, but size of pits suggests some production.

MINERALS:

ECONOMIC: Major Barite
Minor
Trace

GANGUE: Major Quartz, calcite
Minor
Trace

HOST ROCK: Hornfelsed Upper Triassic Balls Bluff Formation

GEOLOGIC DESCRIPTION: Ore occurs in hornfelsed purple and gray fractured siltstones and sandstones. Hornfels strikes northeast and dips 15° W. Pits and prospects are aligned east-west and extend almost to the contact with a 3000-ft-wide differentiated diabase sill that has granophyre and pegmatite zones. Barite occurrence reported in roadcut of U.S. Rte 15 by USGS geologists W.L. Newell and R. Volckman in 1978-79, extending barite occurrences to a 3000' x 1500' area.

REFERENCES: Edmundson, 1938; Froelich and Leavy, 1981; Lee, 1979; Luttrell, 1966.

SITE NAME: Mountain Run SITE NUMBER: 6-262

COMMODITY: major minor Cu, Fe, U? DEPOSIT TYPE: hornfels/replacement

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ Froelich 8/84
DATE

LOCATION: county Culpeper state VA MINING DISTRICT

quadrangle/scale Culpeper East 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 38° 27' 09" Longitude W: 77° 54' 09"

Location Comments: On southwest side of bridge abutment of Va. Rte. 663 0.8 mi north of Stevensburg; junction of Rte. 663 and Rte. 3, 50 meters west (upstream) on steep valley wall.

MINERALS:

ECONOMIC: Major

Minor Malachite, hematite

Trace Uranium minerals?

GANGUE: Major

Minor

Trace

HOST ROCK: Hornfelsed Triassic arkosic sandstone

GEOLOGIC DESCRIPTION: Ore occurs in hornfelsed, indurated, pebbly arkosic sandstone with leached porous zones, interbedded with thermally metamorphosed sandstone, pebbly sandstone, siltstone, and shale about 10 meters thick. These beds strike N 10° E and dip 8° W, and the mineralization associated with them is stratabound and is restricted to weathered and altered partly friable pebbly sandstone which oozes groundwater.

REFERENCES: From grab sample collected by A.J. Froelich (1984).

SITE NAME: Stevensburg SITE NUMBER: 6-263

COMMODITY: major Zn, Cu minor Pb DEPOSIT TYPE: Stratabound/ replacement

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ Froelich 8/84
DATE

LOCATION: county Culpeper state VA MINING DISTRICT

quadrangle/scale Culpeper East 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 38° 26' 20" Longitude W: 77° 54' 56"

Location Comments: 1650 ft. south of quarry entrance off Rte. 3, 0.6 mi west of Stevensburg, junction of Rtes. 3 and 663, 5.5 mi east of Culpeper (junction of A29 and Rte. 3), on site of Culpeper Crushed Stone Quarry.

PRODUCTION/ASSAYS: Mineralized beds contain approximately 2000-5000 ppm copper and zinc.

MINERALS:

ECONOMIC: Major

Minor Sphalerite, chalcopyrite, bornite

Trace

GANGUE: Major

Minor

Trace

PARAGENESIS: Sulfide mineralization replaces early pyrite, which is associated with organic material and root fabrics in siltstones. Paragenesis: pyrite; replacement of pyrite by chalcopyrite; replacement of pyrite and chalcopyrite by bornite; sphalerite.

HOST ROCK: Slightly metamorphosed Triassic calcareous sandy mudstone.

GEOLOGIC DESCRIPTION: At least two mineralized beds, each a few feet thick, occur in the quarry, situated in identical sedimentological settings. Mineralization is apparently related to diagenetic replacement of early pyritic sulfide in black calcareous siltstone.

REFERENCES: U.S. Geological Survey chemical analysis on jobs BK-59 (samples CSQ-1, CSQ-2, CSQ-6, CSQ-7) and BF-71 (sample S-2S), from samples collected by G.R. Robinson, (U.S. Geological Survey, Reston, Va.) in 1983.

SITE NAME: Culpeper Prospect SITE NUMBER: 6-264

COMMODITY: major Cu minor Fe DEPOSIT TYPE: hornfels/skarn

OCCURRENCE TYPE: __mine __quarry X prospect __min. occurrence REPORTER/ Robinson 8/85
DATE

LOCATION: county Culpeper state VA MINING DISTRICT

quadrangle/scale Culpeper East 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 38° 26' 08" Longitude W: 77° 59' 44"

Location Comments: 2.5 miles south of Culpeper and 75 to 100 feet west of the Southern Railroad line.

HISTORY: A shallow pit was sunk in 1917.

MINERALS:

ECONOMIC: Major Pyrite, magnetite
Minor Chalcopyrite, specular hematite, malachite
Trace Azurite

GANGUE: Major Epidote, calcite
Minor
Trace

HOST ROCK: Triassic conglomerate

GEOLOGIC DESCRIPTION: Mineralization occurs in altered Triassic conglomerates near the Mt. Pony diabase body.

REFERENCES: Luttrell, 1966; Roberts, 1928.

SITE NAME: Batna Copper Mine SITE NUMBER: 6-265

COMMODITY: major Cu minor DEPOSIT TYPE: Hornfels

OCCURRENCE TYPE: __mine __quarry X prospect __min. occurrence REPORTER/ Froelich 7/84
DATE

LOCATION: county Culpeper state VA MINING DISTRICT

quadrangle/scale Culpeper East 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 38° 23' 50" Longitude W: 77° 53' 29"

Location Comments: Approx. 1500 feet south of Batna, at the junction of Rtes. 663 and 647. Reportedly, site is 1250 feet south along dirt road, but could not be located. Small overgrown pits and sparse float.

MINERALS:

ECONOMIC: Major
Minor Malachite, specular hematite
Trace

GANGUE: Major
Minor
Trace

HOST ROCK: Hornfelsed Triassic siltstones

GEOLOGIC DESCRIPTION: Deposit occurs in a green, gray, and mauve hornfels in shattered and faulted siltstone, 2600 feet east of a diabase contact.

REFERENCES: Froelich and Leavy, 1981; Luttrell, 1966; Roberts, 1928; Weed, 1911.

SITE NAME: Somerset (Taylor's) mine SITE NUMBER: 6-266

Stratabound/

COMMODITY: major Cu minor DEPOSIT TYPE: replacement

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Robinson 8/85

DATE

LOCATION: county Orange state VA MINING DISTRICT

(Barborsville basin)

quadrangle/scale Gordonsville 1:24 000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 38° 12' 56" Longitude W: 78° 13' 29"

Location Comments: 3/4 mile west of the town of Somerset

HISTORY: Taylor's copper mine, described by Rogers, was opened around 1835. Additional prospect development occurred around 1845.

MINERALS:

ECONOMIC: Major Pyrite, chalcopyrite
Minor Malachite
Trace

GANGUE: Major
Minor
Trace

HOST ROCK: Triassic sandstone and shale

GEOLOGIC DESCRIPTION: Grains and nodules of chalcopyrite and pyrite as much as 2 cm across are disseminated in red sandstone and shale.

REFERENCES: Luttrell, 1996; Roberts, 1928; Rogers, 1884; Weed, 1991.

SITE NAME: Albemarle zinc-lead mine SITE NUMBER: 7-267

COMMODITY: major Zn, Pb minor Ag, F DEPOSIT TYPE: Vein

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/ Robinson 8/85
DATE

LOCATION: county Albemarle state VA MINING DISTRICT

quadrangle/scale Schuyler 1:24,000 PHYSIOGRAPHIC AREA Piedmont

Latitude N: 37° 50' 11" Longitude W: 78° 42' 25"

Location Comments: Located on the east flank of Shiloh Mountain at approximately 820 feet elevation, near headwaters of Ivy Creek.

HISTORY: The mine was opened by the Albemarle Zinc and Lead Company in 1906. The workings consisted of three shafts to depths of 25, 50, and 125 feet, and two cross adits.

PRODUCTION/ASSAYS: Watson (1907) reported that galena from the deposit is argentiferous, and and arsenic and antimony present.

MINERALS:

ECONOMIC:	Major	Galena, sphalerite
	Minor	Chalcopyrite, smithsonite
	Trace	Cerussite, azurite
GANGUE:	Major	Fluorite, quartz
	Minor	
	Trace	

PARAGENESIS: Galena, sphalerite, chalcopyrite, and fluorite are primary minerals. Smithsonite, cerussite, and azurite resulted from supergene alteration of these primary minerals.

HOST ROCK: Quartz-fluorite vein in sheared Lynchburg gneiss

GEOLOGIC DESCRIPTION: The vein can be traced for several miles along an average trend of N45° E and it dips 80-85° NW, generally parallel to a Jurassic diabase dike 25 feet distant on the northwest side. The vein is variable in width, averaging 4 ft, and is lenticular, consisting of bulbous bodies of fluorite and quartz through which galena and sphalerite are distributed. Schistose rock adjacent to the vein shows evidence of shear deformation and commonly is mineralized. The age of this deposit is uncertain, but is probably Mesozoic, because vein orientation parallels trend of a Mesozoic diabase dike and related fractures.

REFERENCES: Giannini, 1959; Nelson, 1962; Watson, 1907.

SITE NAME: Scottsville SITE NUMBER: 7-268

COMMODITY: major Ba minor DEPOSIT TYPE: vein/replacement

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/DATE Robinson 8/85

LOCATION: county Albemarle state VA MINING DISTRICT Scottsville

quadrangle/scale Esmont 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 37° 48' 32" Longitude W: 78° 34' 35"

Location Comments: Mineralization not precisely located in reference. Site shown is location of abandoned crushed rock quarry.

MINERALS:

ECONOMIC: Major Specular hematite, pyrite
Minor
Trace

GANGUE: Major Barite
Minor
Trace

HOST ROCK: Altered(?) Triassic sandstone

GEOLOGIC DESCRIPTION: "Specular hematite, pyrite, and barite occur in fracture fillings and vugs and are believed to be hydrothermal in origin." (Sunderman, 1958, p. 51) Several old prospect pits were discovered in the area.

REFERENCES: Sunderman 1958.

SITE NAME: Dolan Property SITE NUMBER: 7-269

COMMODITY: major Cu minor DEPOSIT TYPE: vein/fault zone

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/DATE Robinson 8/85

LOCATION: county Nelson state VA MINING DISTRICT Scottsville

quadrangle/scale Howardsville 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 37° 42' 19" Longitude W: 78° 40' 33"

Location Comments: Southwest of Rockfish River near Warminster

MINERALS:

ECONOMIC: Major Bornite
Minor Malachite
Trace

GANGUE: Major Quartz, calcite
Minor
Trace

HOST ROCK: Triassic shale

GEOLOGIC DESCRIPTION: Bornite occurs with quartz and calcite in veins and lenses in fractured Triassic shale.

REFERENCES: Espenshade, 1954; Luttrell, 1966.

SITE NAME: Bell Branch Gold Occurrence SITE NUMBER: 8-270

COMMODITY: major Au minor DEPOSIT TYPE: Placer

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ Robinson 8/85
DATE

LOCATION: county Davie state NC MINING DISTRICT
Davie County

quadrangle/scale Lone Hickory 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 36° 02' 38" Longitude W: 80° 39' 10"

Location Comments: Roadcut on Bell Branch Road, just east of Stillman Creek

PRODUCTION/ASSAYS: Semi-quantitative spectrographic analysis on sample yielded 150 ppm Au. Bulk sample re-analyzed by atomic absorption yielded 0.1 ppm Au (J.P. Minard, 1968 notes).

MINERALS:

ECONOMIC: Major
Minor
Trace Native gold

GANGUE: Major
Minor
Trace

HOST ROCK: Gravelly Triassic conglomerates interbedded with red-brown siltstone.

GEOLOGIC DESCRIPTION: Sample is from a gravelly Triassic conglomerate with abundant quartz vein pebbles.

REFERENCES: Minard, J.P. (U.S. Geological Survey, personal communication, 1984), field notes, 1977.

SITE NAME: Womble prospect SITE NUMBER: 9-271

COMMODITY: major Au minor DEPOSIT TYPE: Placer

OCCURRENCE TYPE: __mine __quarry X prospect __min. occurrence REPORTER/DATE Robinson 8/85

LOCATION: county Chatham state NC MINING DISTRICT Deep River

quadrangle/scale Merry Oaks 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 35° 38' 18" Longitude W: 79° 07' 17"

Location Comments: 3 miles northwest of Moncure, near contact with pre-Mesozoic volcanic rocks

MINERALS:

ECONOMIC: Major Native gold
Minor
Trace

GANGUE: Major
Minor
Trace

HOST ROCK: Triassic conglomerate

GEOLOGIC DESCRIPTION: Free gold occurs in a Triassic conglomerate consisting of quartz, decomposed granite, schist, and felsic porphyry clasts. Gold-bearing veins in pre-Mesozoic metavolcanic rocks occur nearby to the west of the Triassic basin.

REFERENCES: Becker, 1895.

SITE NAME: Clegg copper mine SITE NUMBER: 9-272

COMMODITY: major Cu minor DEPOSIT TYPE: Vein

OCCURRENCE TYPE: X mine __quarry __prospect __min. occurrence REPORTER/DATE Robinson 8/85

LOCATION: county Lee state NC MINING DISTRICT

quadrangle/scale Colon 1:24,000 PHYSIOGRAPHIC AREA Carolina slate belt

Latitude N: 35° 35' 20" Longitude W: 79° 08' 17"

Location Comments: 8.3 miles north of Sanford; 0.09 miles east on SR 1433 from the intersection of SR 1533 and SR 1466. Turn south (right) onto a logging road and go 2700 feet to mine workings.

MINERALS:

ECONOMIC: Major Pyrite, chalcopyrite, bornite
Minor Malachite, chalcocite
Trace Azurite, cuprite

GANGUE: Major Quartz, chlorite
Minor Calcite, specular hematite, epidote, sericite
Trace

PARAGENESIS: Primary minerals consist of pyrite, chalcopyrite, and bornite. Malachite, azurite, cuprite, and chalcocite result from supergene alteration.

HOST ROCK: Quartz vein cutting metavolcanic rocks

GEOLOGIC DESCRIPTION: Mineralization is in a 3- to 6-foot-wide quartz vein cutting felsic tuff. In places, the volcanic rock has been bleached and sheared and contains pyrite, chalcopyrite, and bornite. Vugs in the tuff contain quartz crystals. The age of this deposit is uncertain; it may be pre-Mesozoic. Mineralization may be Mesozoic in age. (Robert G. Schmidt (U.S. Geological Survey, personal communication, 1985)

REFERENCES: Carpenter, 1976.

SITE NAME: Tennessee Copper Prospect SITE NUMBER: 9-273

COMMODITY: major Cu minor DEPOSIT TYPE: vein/replacement

OCCURRENCE TYPE: __mine __quarry X prospect __min. occurrence REPORTER/ Robinson 8/85
DATE

LOCATION: county Moore state NC MINING DISTRICT

quadrangle/scale Bear Creek 1:24,000 PHYSIOGRAPHIC AREA Carolina slate belt

Latitude N: 35° 30' 08" Longitude W: 79° 25' 06"

Location Comments: 11.1 miles northeast of Robbins and 10.8 miles north of Carthage. 1.2 miles east on SR 1619 from intersection of SR 1619 and SR 1006. Turn north (left) and follow logging road for 2000 feet. Mine lies 150 feet northeast of logging road.

HISTORY: Prospect includes one shaft, one pit, and one trench. The shaft is at least 100 feet deep.

PRODUCTION/ASSAYS: Tennessee Copper Company assay - 0.85% Cu, 0.02 oz/ton Au, 0.18 oz/ton Ag.

MINERALS:

ECONOMIC: Major Malachite
Minor Cuprite, azurite, chalcocite
Trace

GANGUE: Major Chlorite, quartz
Minor Orthoclase, calcite, epidote, sericite
Trace Biotite, kaolin, siderite, fluorite

PARAGENESIS: Present copper mineralization is supergene.

HOST ROCK: Silicified tuff or tuff breccia.

GEOLOGIC DESCRIPTION: The country rock is brecciated, silicified, chloritized, sericitized, and bleached in the vicinity of the veins. The mineralized zone strikes N30° E and dips 60° NW. Vein quartz has been introduced along the structure. The age of this deposit is uncertain - it may be pre-Mesozoic. Mineralization may be Mesozoic in age. (Robert G. Schmidt, U.S. Geological Survey, personal communication, 1985)

REFERENCES: Carpenter, 1976.

SITE NAME: Harrisville Barite Occurence SITE NUMBER: 9-274

COMMODITY: major Ba minor DEPOSIT TYPE: Vein

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ Robinson 8/85
DATE

LOCATION: county Montgomery state NC MINING DISTRICT

quadrangle/scale Harrisville 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 35° 12' 42" Longitude W: 79° 48' 57"

Location Comments: Occurrence is exposed is in a roadcut on the north side of an abandoned segment of Rt. 731, 1500 feet west of the Sardis Church building. Old roadbed is location of Uwharrie National Forest Boundary.

MINERALS:

ECONOMIC: Major Barite
Minor
Trace

GANGUE: Major
Minor
Trace

HOST ROCK: Diabase dike

GEOLOGIC DESCRIPTION: Barite veins occur in saprolite of a north-trending diabase dike. Veins average 1/4 inch thick and appear to be localized in joint or fracture surfaces in the diabase dike. Individual veins can be traced for up to 15 feet.

REFERENCES: Burt, Ed (North Carolina Dept. of Natural Resources and Community Development), 1985, personal communication.

SITE NAME: Mangum Gold #2 SITE NUMBER: 9-275

COMMODITY: major Au minor DEPOSIT TYPE: Placer

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ Robinson 8/85
DATE

LOCATION: county Richmond state NC MINING DISTRICT

quadrangle/scale Mangum 1:24,000 PHYSIOGRAPHIC AREA basin

Latitude N: 35° 07' 25" Longitude W: 79° 58' 30"

Location Comments: In roadcut 0.75 mi east of Mangum, N.C.

PRODUCTION/ASSAYS: Four grab-bag samples of siltstone and sandstone from this locality ran .2, 2.1, 0.1, and 0.1 ppm Au by semiquantitative spectrographic analysis (Menard notes, 1968.)

MINERALS:

ECONOMIC: Major

Minor

Trace Native gold

GANGUE: Major

Minor

Trace

HOST ROCK: Interbedded Triassic sandstone, quartzite, and siltstone

REFERENCES: Minard, J.P., 1984, personal communication (field notes, 1968).

SITE NAME: Mangum Gold #1 SITE NUMBER: 9-276

COMMODITY: major Au minor DEPOSIT TYPE: Placer

OCCURRENCE TYPE: __mine __quarry __prospect X min. occurrence REPORTER/ Robinson 8/85
DATE

LOCATION: county Richmond state N.C. MINING DISTRICT

quadrangle/scale Mangum 1:24,000 PHYSIOGRAPHIC AREA Triassic basin

Latitude N: 35° 07' 20" Longitude W: 79° 59' 50"

Location Comments: Sample taken from near dirt road

MINERALS:

ECONOMIC: Major

Minor

Trace Native gold

GANGUE: Major

Minor

Trace

HOST ROCK: Triassic red-brown siltstone with overlying pebble conglomerate

REFERENCES: Minard, J.P., U.S. Geological Survey, personal communication, 1984 (field notes, 1968).